

ENVIRONMENTAL ASSESSMENT BOARD



ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARINGS

VOLUME: 25


DATE: Wednesday, June 5, 1991

BEFORE:

HON. MR. E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

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ENVIRONMENTAL ASSESSMENT BOARD
ONTARIO HYDRO DEMAND/SUPPLY PLAN HEARING

IN THE MATTER OF the Environmental Assessment Act,
R.S.O. 1980, c. 140, as amended, and Regulations
thereunder;

AND IN THE MATTER OF an undertaking by Ontario Hydro
consisting of a program in respect of activities
associated with meeting future electricity
requirements in Ontario.

Held on the 5th Floor, 2200
Yonge Street, Toronto, Ontario,
on Wednesday, the 5th day of June,
1991, commencing at 10:00 a.m.

VOLUME 25

B E F O R E :

THE HON. MR. JUSTICE E. SAUNDERS	Chairman
DR. G. CONNELL	Member
MS. G. PATTERSON	Member

S T A F F :

MR. M. HARPUR	Board Counsel
MR. R. NUNN	Counsel/Manager, Informations Systems
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A P P E A R A N C E S

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L. FORMUSA)	
B. HARVIE)	
J.C. SHEPHERD)	IPPSO
I. MONDROW)	
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D. STARKMAN)	GROUPS
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		PUBLIC HEALTH
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I N D E X o f P R O C E E D I N G S

Page No.

<u>RONALD TABOREK,</u>	
<u>DAVID BARRIE,</u>	
<u>JOHN KENNETH SNELSON,</u>	
<u>JUDITH RYAN; Resumed</u>	4358
Cross-Examination by Mr. Starkman (cont'd)	4358
Cross-Examination by Mr. H. Poch	4413
Cross-Examination by Mr. Monger	4474
Cross-Examination by Mrs. DeQuehen	4496
Cross-Examination by Mr. Thompson	4526

L I S T o f E X H I B I T S

<u>No.</u>	<u>Description</u>	<u>Page No.</u>
167	Extract from Exhibit 79, entitled "City of Toronto and Environs -- Major Ontario Hydro Facilities."	4414
168	Document Precis, May 29, 1991.	4433
169	Northumberland Environmental Protection Reference 2, Panel 2.	4529

L I S T o f U N D E R T A K I N G S

<u>No.</u>	<u>Description</u>	<u>Page No.</u>
142.63	Ontario Hydro undertakes to provide how often since 1985 the MOE called upon Hydro to reduce the units at Lakeview, the duration, and the extent the plant would have had to be reduced in its generating capacity, and where replacement capacity came from.	4431

1 ---On commencing at 10:00 a.m.

2 THE REGISTRAR: Please come to order.

3 This hearing is again in session. Please be seated.

4 THE CHAIRMAN: Mr. Starkman.

5 MR. STARKMAN: Thank you, Mr. Chairman.

6 I am not sure that the amplification system is working.

7 Can people hear me at the back?

8 MRS. FORMUSA: No.

9 ---Off the record discussion.

10 MR. STARKMAN: Is that better? Oh.

11 Thank you.

12 RONALD TABOREK,
13 DAVID BARRIE,
JOHN KENNETH SNELSON,
14 JUDITH RYAN; Resumed

15 CROSS-EXAMINATION BY MR. STARKMAN (Cont'd):

16 Q. Ms. Ryan, there is just one question
17 I neglected to ask you yesterday before I move on to
18 the question of life extension. It is with respect to
19 the environmental division, the signing off procedures.
20 And I know you had a long discussion with Mr. Shepherd
21 and so on. The only question I had was, did the
22 environmental division sign off the DSP?

23 MS. RYAN: A. I know we were part of the
24 process and so our comments were incorporated into the
25 document. I can't answer that question right now. I

1 do not know. In that it went through for approval, it
2 was signed off, but I do not have that information.

3 Q. I am just a little unclear on the
4 answer. You said, "Since it went through for approval,
5 it was signed off," so do I take it that the
6 environmental division signed off, and by "signed off",
7 I take it we mean, you said it was acceptable to the
8 environmental division or you said it was unacceptable?

9 A. I am just trying to think of the
10 timing of when the DSP went through and when the
11 sign-off began. I do not recall the specific sign-off,
12 but to the extent that environment division was
13 involved in the process of preparing the document, yes,
14 it had our agreement.

15 Q. So, I take it the answer is
16 ultimately, the environment division signed off DSP as
17 being the acceptable environmental plan?

18 A. Except that I do not have a record of
19 the specific sign-off.

20 Q. I understand. I mean, maybe we are
21 nitpicking here a little bit, but --

22 THE CHAIRMAN: Let me cut through. But
23 if there had been a sign-off procedure, you would have
24 signed off. Would that be fair.

25 MS. RYAN: That is correct.

1 MR. STARKMAN: Q. All right. Were the
2 comments made by the environmental division with
3 respect to the DSP in its developmental stages?

4 MS. RYAN: A. Yes. We were part of the
5 process and we had comment at the various stages,
6 recognizing that environment division came into being
7 after the process was initiated.

8 Q. Yes. I appreciate that. Is there
9 something in writing that you could provide us with,
10 indicating what comments the environmental division
11 made on various aspects of the plan?

12 A. I believe we answered an
13 interrogatory to that effect and said that the internal
14 management process which led to the Demand/Supply Plan
15 really was not relevant to this process.

16 Q. Well, that may have been your answer
17 to the interrogatory, but I am asking you now if there
18 are documents which would indicate what the
19 environmental division's comments were with respect to
20 the plan in its developmental stages.

21 THE CHAIRMAN: Well, I am not sure that
22 those comments would be relevant. Granted, there would
23 be some give and take within the organization resulting
24 in the DSP. There would be views pro and con on
25 various matters, but the plan that we are considering

1 today is the Demand/Supply Plan, whatever it happens to
2 be.

3 MR. STARKMAN: Well, Mr. Chairman, just
4 let me --

5 THE CHAIRMAN: I am sure there were views
6 expressed, conjectures made in the course of the
7 formulation of DSP that would be all over the place,
8 but what help is that to us?

9 MR. STARKMAN: Mr. Chairman, let me try
10 to put it this way: We believe that -- this is a
11 hearing about a plan, and one of the things that
12 Ontario Hydro is saying is, we have within our
13 organization an environmental division, people
14 concerned about environmental matters, and that we take
15 these things into account when we develop the plans.

16 In other words, you can have confidence
17 in our ability to take these into account, and we do
18 not have any confidence in that ability. We think that
19 they really do not do this. We are trying to explore
20 to what extent there is this give and take with respect
21 to environmental matters or whether it is just a lip
22 service type of procedure inside Ontario Hydro.

23 THE CHAIRMAN: Well, even if the worst
24 case, if it were nothing more than lip service, so
25 what? How is that going to help us decide our

1 assessment of the plan?

2 MR. STARKMAN: Mr. Chairman, I am willing
3 to pass on. I think it might have been some assistance
4 because the Board, in drafting its decision, if there
5 is confidence in Ontario Hydro's ability and commitment
6 to doing this sort of environmental analysis
7 internally, that dictates a certain type of decision
8 that the Board will make.

9 If the Board ultimately does not have any
10 confidence that Ontario Hydro is really sensitive to
11 environmental issues in carrying out its mandate, then
12 the Board, in our submission, would be compelled to
13 draft a decision which has many, many more conditions
14 and is much more particular about the type of
15 discretion that Hydro will be left with in making all
16 the determinations that they say they are going to make
17 over the course of the next 25 years.

18 So, it is quite a fundamental question
19 ultimately whether the Board believes Hydro that they
20 are set up and committed to taking the environment into
21 account when they make the decisions, but I am willing
22 to pass on.

23 THE CHAIRMAN: Well, if you want to ask a
24 question of this witness along those lines, I am not
25 going to stop you from doing that and they can answer

1 it as they see fit.

2 MR. STARKMAN: Q. I think the question I
3 was trying to get at was to explore the types of give
4 and take and trade-offs that are ultimately made in the
5 development of the plan, and I asked whether there were
6 documents would indicate the comments that the
7 environmental division made with respect to the
8 elements of the plan in its draft stages?

9 MS. RYAN: A. My knowledge of the way
10 that the development went - and I guess specifically,
11 you would be referring to the environmental analysis
12 because that is where we had the most input - the
13 process was through work group and committee, so that
14 it was mostly verbal discussion on how the document was
15 going to look and what considerations should be taken
16 into account. So, our input was incorporated that way.

17 But I think it is important to look at
18 the document that was produced and the manner in which
19 it is being reviewed here, to incorporate further
20 considerations. That is important and not the process
21 that Ontario Hydro went through to get to the document.

22 MR. SNELSON: A. We do expect, Mr.
23 Starkman, to bring evidence on how the plan was
24 selected in Panels 10 and 11 and that selection process
25 will include how environmental matters were weighed in

1 that decision and so, there may be an opportunity to
2 ask this sort of question of witnesses on that panel.

3 Q. Yes. I appreciate that, but I am
4 still back to this question of whether there are
5 internal documents. I understand what you say. Most
6 of it was done in working groups orally, there was a
7 lot of give and take, but are there documents with
8 respect to this process, the development of this
9 process?

10 MS. RYAN: A. To my knowledge, there are
11 not specific documents.

12 Q. So, specific questions about the
13 types of environmental concerns that were raised with
14 the development of the preferred plan and the trade-off
15 between the plan, you are suggesting we deal with in
16 Panel 10 or 11?

17 MR. SNELSON: A. I believe that the
18 issue as to whether environmental costs in monetary
19 terms should be included in cost studies which will be
20 dealt with in principle in Panel 3. That each of the
21 subsequent option panels will have evidence on how
22 environmental matters and environmental considerations
23 were taken into account in the selection and the
24 valuation of specific options, and that the overall
25 issue as to the selection of a plan from both an

1 economic, technical and environmental point of view
2 will be brought in Panels 10 and 11.

3 Q. Let me ask you one more question, Ms.
4 Ryan, on this. To your knowledge, were there concerns
5 raised by the environmental division that in your
6 opinion were not adequately addressed in the plan in
7 its final format?

8 MS. RYAN: A. To my knowledge, we did
9 raise concerns with respect to early drafts and those
10 concerns were implemented and show up in the drafts
11 that came out, or the final report.

12 Q. So, in your opinion, then, the
13 concerns of the environmental division were adequately
14 addressed in the DSP, the final draft of the DSP?

15 A. Yes.

16 Q. All right. Let me move on then to
17 the question of plant retirement. I don't know who I
18 should address these questions to in the first
19 instance, but can we just look at page 4-12 of the
20 Plan, 4-12 of the balance of power, and I guess it is
21 figure 4-12 that I am looking at, Mr. Taborek.

22 MR. TABOREK: A. Yes.

23
24
25 ...

1 [10:15 a.m.] Q. And this figure outlines the fossil
2 and nuclear generating unit retirements by 2014.

3 A. Yes.

4 Q. And by my calculation, there is
5 approximately 6600 megawatts of fossil generating
6 capacity that is projected to be retired.

7 A. I believe that's the number we
8 testified to.

9 THE CHAIRMAN: How much, 6600?

10 MR. TABOREK: 6600, approximately.

11 MR. STARKMAN: Q. And is Hydro telling
12 us in this plan that they will retire these units?

13 MR. TABOREK: A. Yes. They will retire,
14 you haven't put a date on it.

15 Q. I guess I should finish the sentence.
16 They will retire these units on or before the indicated
17 dates?

18 A. No. We are not saying that. The
19 words "some sooner," "some later" perhaps.

20 Q. And because that's because it's an
21 average retirement date; is that why?

22 A. That's part of it, yes.

23 Q. And what is the other part or parts?

24 A. No, that sums it up, that's it.

25 Q. What is going to determine whether or

1 not a plant retires before or after the 40-year
2 average?

3 A. We outlined to you four criteria that
4 are assessed periodically to determine what the life of
5 a station should be. We did that in our direct
6 evidence. They are, in effect, the ability to repair
7 it and carry it on; the availability of more economic
8 technology; the ability to meet the environmental and
9 other regulations that will prevail in future, and the
10 availability of approvals for new generation.

11 Q. Mr. Taborek, I listened to Mr. Howard
12 in his opening remarks and I think he indicated, if you
13 like, that the date for the construction of a new
14 nuclear plant would be pushed back to approximately
15 2007 because of the moratorium and Hydro having stopped
16 the pre-engineering. So, that there would be a delay
17 in this matter.

18 I am just wondering what effect that
19 delay would have on these retirement dates, because
20 when I look down the list - I am looking at the fossil
21 plants - a number of them seem to be retiring in and
22 around that period, meaning the turn of the century
23 through to 2010, there is a considerable number of
24 retirements of fossil plants. Wouldn't that, the
25 situation with the stopping of the pre-engineering on

1 the new nuclear, make it necessary or inevitable that
2 you would have to extend the retirement dates for these
3 fossil plants?

4 A. No, I think 40 years would still
5 remain the best life to use. The single fact of the
6 moratorium and the delays in the availabilty of base
7 load, by itself, would not cause us to change that.

8 Q. Mr. Taborek, I take it are you aware
9 of the concept of life extension?

10 A. Yes.

11 Q. Would I be correct that in the States
12 more and more utilities are either extending the life
13 of plants or repowering them in some fashion to have
14 their average life go beyond 40 years, out into the 50
15 and perhaps even 60-year lifetimes?

16 A. More and more utilities are
17 considering it. A lot of utilities are looking at it,
18 I don't think it's fair to say that they are achieving
19 it yet.

20 Q. But they are looking at it?

21 A. Yes.

22 Q. And some are even doing it?

23 A. Some are.

24 Q. And do you know why they are doing
25 it, talking here about extending the life?

1 A. They would be looking at the same
2 criteria we are and determining in their corporate
3 circumstances that is a path that they would like to
4 follow.

5 Q. Is Hydro looking at this possibility
6 in any way?

7 A. In general, it remains an option.
8 The difference between the U.S. and ourselves is that
9 our plants are at mid-life.

10 THE CHAIRMAN: I am sorry, your plants
11 are what?

12 MR. TABOREK: Excuse me, sir?

13 THE CHAIRMAN: The difference between the
14 U.S. and ourselves, our plants are...?

15 MR. TABOREK: Are at their mid-life. The
16 plants that the Americans are looking closely at are
17 closer towards the end of their life. We have made the
18 point that it is an academic exercise to attempt to
19 judge future conditions too early in a plant's life.

20 So that it is perhaps appropriate for the
21 Americans to be looking at life extension; it is
22 certainly not appropriate for us to be considering it.

23 In addition, many of the American
24 utilities do not have 40-year lives. They tend to have
25 30-year lives for instance, linked not so much to the

1 physical life of the units, but to the licensing
2 conditions that prevail in the U.S.

3 MR. STARKMAN: Q. But with respect to
4 the first part of your answer, I take it that since
5 Hydro's fossil generation is in its mid-life, you
6 haven't taken a serious look at it because they are not
7 near the end of their projected life?

8 MR. TABOREK: A. On the contrary. We
9 have taken a most serious look at it. It is a very
10 serious consideration.

11 Q. But you won't make a decision about
12 the life extension until they are closer to the end of
13 their projected service lives?

14 A. Correct.

15 Q. So that, with respect to the dates
16 that you have given us, it's very hard to tell - I am
17 talking about the retirement dates for the fossils - it
18 is very hard to tell whether those dates will hold up
19 until we are closer to the actual date in question?

20 A. The best information that we can
21 provide you with after a good deal of work and good
22 deal of thought is that that is the appropriate life to
23 use. And that furthermore, that is the life that will
24 actually be experienced.

25 Q. But would you agree with me that it

1 would, as a general principle, almost always be, if you
2 like, easier in the the broadest sense to repower or
3 completely rebuild a fossil plant on an existing site
4 rather than finding a new site to locate a fossil
5 plants?

6 MR. SNELSON: A. Maybe I can deal with
7 that, Mr. Starkman.

8 The existing fossil generation sites are
9 important sites for electrical generation, and that's
10 because they already are focal points of the
11 transmission system, they have access to cooling water,
12 fuel supplies, infrastructure that is necessary to
13 generate electricity. That is the reason why in the
14 balance of power, Demand/Supply Plan, that
15 redevelopment of the sites where there are presently
16 existing plants, after the end of their life, that is
17 why those sites are identified as illustrative sites
18 for future development. So, that is clearly recognized
19 in the plan.

20 Q. So, I take it the answer is broadly
21 yes, it is easier, environmentally easier, and it would
22 be cost-effective to refurbish an existing plant on an
23 existing site than build a brand new one on a virgin
24 site?

25 MR. TABOREK: A. No, there are two

1 thoughts there together. One is new versus
2 refurbishment, the answer to that is no.

3 MR. SNELSON: A. The other one is
4 redevelopment.

5 MR. TABOREK: A. And the other is
6 redevelop an existing site versus a new site, and Mr.
7 Snelson indicated, there are some factors favouring the
8 existing site, but there are a lot of factors that
9 enter into a decision as to the best location for a new
10 generating station.

11 Q. But the impression I get from reading
12 this chapter is that you will retire these units and
13 then just bulldoze them flat and they will be park
14 land, or something.

15 A. Well, I don't think we said that. As
16 a matter of fact, I think in the latter chapters, as
17 Mr. Snelson as indicated, they are candidates for
18 redevelopment for the stations that we are looking at.

19 Q. Mr. Taborek, if it turned out that
20 you got 50 years or 60 -- let's stay with 50, if you
21 got an average of 50 years out of the fossil units
22 rather than 40 that you have indicated in the plan, do
23 you have any idea what impact that would have on the
24 need date for new generating capacity, holding
25 everything else equal?

...

1 [10:25 a.m.] A. Well, to the extent that that
2 generation is available and able to generate then it
3 would defer the need for new generations. However, I
4 would not recommend that you plan on the basis of a
5 50-year life for fossil stations. The environmental
6 trends are such that it is going to be very, very
7 difficult to keep those stations operating.

8 Q. Mr. Taborek, if you refurbished or
9 life-extended an existing plant wouldn't you be able to
10 put in state of the art environmental controls?

11 A. No, not necessarily.

12 Q. Why do you say that?

13 A. Because there may not be space, there
14 may not be compatibility, and it may not be economic,
15 and I would give you Lakeview, for example. I believe
16 I've testified to Lakeview as a major station that has
17 particular problems we're watching very close see.

18 Q. What about refurbishing or repowering
19 the coal plants for natural gas?

20 A. That is an option that is being
21 looked at for some of the Lakeview units.

22 Q. What about for other coal-fired
23 units?

24 A. Which other coal-fired units now?

25 Q. For any other coal-fired units, are

1 you looking at that possibility?

2 A. Well, we look at the possibility but
3 one of the things you find is that the generation of
4 electricity uses enormous amounts of fuel. One of the
5 things we looked at for an OEB hearing was a
6 calculation of the amount of fuel that Nanticoke would
7 require, just Nanticoke. I think we worked out that it
8 would utilize 25 per cent of all the gas used in
9 Ontario.

10 There is, I think generally, recognized
11 that if problems arose the priorities would go to the
12 normal gas market and second priority would go to
13 electric utilities. So, the fuel is of limited
14 resource, relatively expensive, albeit clean and good
15 to burn, and, therefore, the idea of massive amounts of
16 immediate generation on gas has to be viewed with
17 caution.

18 That is why utilities tend to look for
19 cheap fuel that is little used by other users such as
20 uranium and coal, for instance.

21 Q. Mr. Taborek, what year did you do
22 that analysis?

23 A. I did it a year or two ago.

24 Q. Is this a combined cycle plant?

25 A. No. You said Nanticoke, using

1 Nanticoke, yes.

2 Q. Do you count mothballed plants in the
3 calculation of the need for new capacity? I know you
4 have told us you don't count it in operating reserve or
5 in planning reserve, but do you count it when you are
6 looking at the need for new capacity?

7 A. Well, in this particular calculation
8 of the need, Hearn and Keith are essentially retired
9 around 2005. At various times in the early 2000s, so
10 they are not counted through the remaining period. Nor
11 are they counted in the 32,000 I think we mentioned to
12 you.

13 Q. So, you don't count mothballed plants
14 because you didn't count Hearn Keith?

15 A. Well, Hearn and Keith are our
16 mothballed plants and Thunder Bay 1.

17 MS. PATTERSON: Is the answer to this
18 then that Hearn and Keith are projected to be retired
19 around 2005 and are not calculated after that?

20 MR. TABOREK: That's correct.

21 MR. STARKMAN: Q. I wanted to talk about
22 Hearn and Keith. First of all, what size of a unit is
23 Hearn?

24 MR. TABOREK: A. Hearn has eight units
25 totaling 1200 megawatts. There are four 200 megawatt

1 units and four 100 megawatt units. Keith is 264
2 megawatts, it has four 66 megawatt units.

3 Q. I take it that the question of what
4 should happen with these facilities has been under
5 discussion for a considerable period of time?

6 A. Yes.

7 Q. Can we just look in Exhibit 136,
8 excuse me, 166 at Page 119. And this is a report
9 received in response to an interrogatory, it's called
10 Retirement Study, basically, of Hearn and Keith.

11 A. Yes.

12 Q. I just wanted to look briefly at the
13 recommendations and rational which start at the bottom
14 of 118, under heading 5.0, and continue on to 119.

15 Particularly on 119 there are a number of
16 reasons outlined for recommending that Hearn and Keith
17 be maintained in a mothballed state.

18 MR. SNELSON: A. Yes, perhaps I can
19 answer your question if you have one.

20 Q. It goes on, other advantages of
21 mothballing and so forth. I didn't want to read all of
22 these in. I think they are there to be read but the
23 question I really have is, back in 1984 this matter was
24 looked at and it was determined to mothball these
25 units?

1 A. Yes.

2 Q. Essentially for these reasons. I'm
3 just asking why it is that this -- what has changed to
4 make you want to retire these plants, aren't these
5 reasons still valid?

6 A. There has been the passage of time,
7 there have been changes in environmental acceptability
8 and environmental use, there has been, despite the
9 mothballing, some deterioration in the equipment.
10 There have been other proposals for the use of some of
11 these generating station sites.

12 Q. Yes. On the last point that matter
13 has been under discussion for a very long time?

14 A. I'm sorry?

15 Q. The other uses for the site have been
16 under discussion for a very long time.

17 A. Not necessarily.

18 Q. Mr. Snelson, what I'm getting at is
19 that you have these two units, they are in place, they
20 have been mothballed at least since 1984, what has
21 changed?

22 You told me the four things, but is there
23 anything, more specifically, that has changed to make
24 you set a retirement date?

25 A. I don't believe that we have set a

1 specific retirement date. Mr. Taborek has said that he
2 believes they will be retired by about 2005, that is a
3 judgment, not a specific retirement date.

4 Q. Well, if you just back up to page 72
5 of this same Exhibit 166. This was Interrogatory
6 2.7.48, please provide the currently estimated
7 retirement date for each of Ontario Hydro's generating
8 units, and it says the decommissioning date for Hearn
9 and Keith units currently mothballed is expected to be
10 in the year 2005, now you are telling me that no date
11 has been set.

12 MR. TABOREK: A. That is an assumption
13 for financial calculation purposes which is compatible
14 with the assumption, the judgment, made for the DSP.

15 Q. So, you are telling me now, no date
16 has been set for the retirement of Hearn and Keith?

17 MR. SNELSON: A. I believe that the
18 longer they are in a mothballed condition the more
19 difficult it will be to return them to service.

20 Q. But has a date been set for their
21 retirement?

22 A. No.

23 Q. If no date has been set for their
24 retirement why are they not included in the plan?

25 A. Well, we do have some experience and

1 I have said that the environmental conditions have
2 changed and for instance we did have proposals last
3 year to restart the Hearn units. That was a cause of
4 considerable concern by a number of parties within the
5 area, including the City of Toronto, who, I believe,
6 are going to cross-examination us on this issue later
7 today.

8 So, the restart of those units is not
9 necessarily a forgone conclusion as being acceptable.
10 We believe, in fact, the restart is acceptable but we
11 know that it is controversial and that there are
12 different views. The longer they are in a mothballed
13 state then the more difficult it will be to restart
14 them, both physically and from the environmental point.

15 Q. I understand that Mr. Snelson, but
16 you didn't answer my question. If there is no
17 retirement date set and Hydro believes they could be
18 restarted and I understand it's controversial, and a
19 lot of things Hydro does are controversial. The
20 question really is, why haven't you included them in
21 the plan as one of the options that might be used with
22 respect to meeting the electricity needs.

23
24
25 ...

1 [10:36 a.m.] A. They are included in the plan for
2 upper load growth, but not in the plan for median load
3 growth.

4 MR. TABOREK: A. Because in median load
5 growth, they would be retired in the period leading up
6 to 2005.

7 Q. So, when you say they are included in
8 the plan for the upper load growth, is it reasonable to
9 conclude that what Ontario Hydro really intends to do,
10 or would like to do is, as they said in the 1984
11 retirement study is, keep them on hold and available to
12 see how things turn out and then make a decision later
13 as to what should be done with them?

14 Is that a fair way to look at what you
15 are really proposing about these plans?

16 MR. SNELSON: A. They are being kept as
17 an insurance against upper load growth. That was the
18 plan in 1984. It is the plan today, but I think we
19 have lower confidence today that we will, in fact, be
20 able to use them.

21 Q. So, there is some insurance there,
22 and that is these units?

23 A. They are shown in the plan as being
24 returned to service in upper load growth for a limited
25 period of time as an insurance.

1 Q. Now, Mr. Snelson, I guess I should
2 ask you this question. I notice there is no discussion
3 in the plan about Wesleyville.

4 A. Wesleyville is identified as an
5 illustrative site, I believe.

6 Q. Well, for a nuclear station, but I
7 understood --

8 A. I believe it is also an illustrative
9 site for a fossil station.

10 Q. What about the old unit that Hydro
11 was constructing there in the '70s?

12 A. There isn't very much there.

13 Q. Well, I don't know. I do not want
14 get into talking about what "very much" is, but I
15 understand Hydro started to construct a unit there in
16 the '70s or earlier?

17 A. There was a unit under construction.
18 In fact, there were four units under construction and
19 they were cancelled in stages in the late 1970s.

20 Q. Do you know the reason why they were
21 cancelled?

22 A. Yes.

23 Q. Could you tell us?

24 A. They were cancelled for two reasons.
25 One was that the technology they were using, due to

1 changes in fuel prices, had become substantially
2 uneconomical and so, in a completely free choice as to
3 future generating options, a plant like we were
4 building at Wesleyville would not have been an
5 economical choice.

6 Q. Because it was oil-fired; is that
7 right?

8 A. It was oil-fired. The second reason
9 was that at that time, the forecast of electricity
10 demand was being lowered from a relatively high rate of
11 growth to a somewhat lower rate of growth, and that
12 meant that there was going to be surplus capacity. And
13 one of the responses to that surplus capacity situation
14 was to cancel Wesleyville.

15 Q. Have you looked at the possibility of
16 completing the Wesleyville station and using gas to
17 fire it, rather than oil?

18 A. I believe that what is still at
19 Wesleyville is a building and an chimney, and there is
20 very little else that is there. There is no equipment
21 there of any significance, so, I would expect that if
22 we went to the Wesleyville site, that it is
23 substantially the same as building a new generating
24 plant from scratch. You may be able to make some small
25 use of facilities that are already there, but not to

1 any great degree.

2 Q. I wanted to also ask briefly about
3 whether or not there were hydroelectric generating
4 sites that were within the control of Ontario Hydro
5 that do not seem to be mentioned in the plan.

6 I am not talking here about the sites
7 that are mentioned and that form part of the plan; I am
8 talking go about other sites. Retired sites, for
9 example; are there retired hydroelectric sites?

10 A. There have been a number of very
11 small hydroelectric sites that have been retired over
12 the years.

13 Q. Do you know how many there might be?

14 A. They have been given in answers to
15 interrogatories. I can give you the numbers.

16 Q. Sure.

17 A. I believe it is Interrogatory
18 2.20.11, 2.20.11.

19 Q. Now, I do not have that one. It is
20 my information that there are -- when you say
21 "handfuls", what are we talking about? Are we talking
22 about two or three or more than 10 or more than 20?

23 A. It would be of the order of about 20,
24 just scanning the list.

25 THE CHAIRMAN: Twenty? That is 20 sites;

1 is that right?

2 MR. SNELSON: Yes. The sizes range from
3 150 kilowatts. That is kilowatts; not megawatts. The
4 largest one appears to be 11 megawatts which was taken
5 out of service in 1949. The reason given is for mining
6 operations and I don't know the specifics of that. But
7 most of them are less than a megawatt.

8 MR. STARKMAN: Q. Thank you, Mr.
9 Snelson.

10 Mr. Taborek, I just wanted to go back now
11 and ask you about the retirement dates for the thermal
12 units and the DRC recommendations. This is in
13 Interrogatory 2.7.50, which is in Exhibit 166.

14 MR. TABOREK: A. Yes.

15 Q. Maybe you could follow these through
16 with me because I would just like to know how Hydro
17 goes about determining these dates. You are pretty
18 firm on the 40. Just dealing with thermal units first.

19 Now, I am reading on page 104.

20 THE CHAIRMAN: 104?

21 MR. STARKMAN: 104.

22 MR. TABOREK: Yes?

23 MR. STARKMAN: Q. The committee
24 recommended there that the average service life
25 expectancy of 30 years be maintained; is that correct?

1 Looking here under the title "Thermal Generating
2 Facilities," page 104 in the 1981 DRC.

3 MR. TABOREK: A. Yes. "Thermal" here
4 means fossil.

5 Q. Yes?

6 A. That was the year in which the life
7 expectancy for the nuclear stations was extended from
8 30 to 40 years.

9 Q. Yes. I will come back to the nuclear
10 stations. Just dealing with the fossil now.

11 A. Okay.

12 Q. It was 30 years for the reasons, if
13 you like, that are outlined in the paragraph below?

14 A. Yes.

15 Q. All right. That seems to have stayed
16 pretty much the same, but I notice in 1985, which is at
17 page --

18 A. Well, for 1981 to '87, Lambton and
19 Nanticoke were a 35-year life. Yes. That is on the
20 next page, 105. So, it is the other units that are
21 being referred to in this instance.

22 Q. All right. Can we go to page 88 of
23 this same exhibit?

24 THE CHAIRMAN: 88?

25 MR. STARKMAN: Q. 88, which is the 1985

1 extract from the DRC report. And here, the committee
2 is recommending, or indicating, that the estimated
3 average service life for fossil generating stations be
4 extended to 40 years from a range of 30 to 35?

5 MR. TABOREK: A. Correct.

6 Q. Were you on the committee at that
7 time, 1985?

8 A. I think I may have joined the year
9 later.

10 Q. All right. Now, I am just reading,
11 with interest, the paragraphs underneath. They seem to
12 indicate that the stations were designed to operate
13 over a 30-year period?

14 A. Correct.

15 Q. But that during the late '70s and
16 early '80s, the operating experience and the condition
17 of the fossil generating stations indicated that a
18 service life beyond 30 years could be expected?

19 A. Correct.

20 Q. And then the last paragraph, or last
21 sentence:

22 "Subsequent operating experience and
23 more recent develops in emission control
24 technology now indicate that a 40-year
25 service life is appropriate for all

1 fossil generating units as discussed
2 below."

3 A. Correct. You will recall that I put
4 into evidence charts of the historic performance of
5 these units, the forced and the total incapability, and
6 you will recall that in the period of the '70s, that
7 the incapability was rather high. And that in this
8 period, a number of what I have called teething
9 problems were resolved - actually, these comments are
10 true for both fossil and nuclear - and in this time
11 period, as these people are saying, there was a
12 substantial improvement in their performance and they
13 felt that the stations were operating satisfactorily.

14 This was also the period, the decade of
15 the '80s was a decade in which, as I have indicated,
16 acid gas controls were put on the stations as early as
17 1981, over and above the existing regulations, and
18 tightened at roughly two-year intervals. In this
19 period, we were able to work out technology and
20 economics to ensure that these units would reasonably
21 operate for the remainder of their 40-year life.

22 Q. The other part that I found of
23 interest on page 88 was the comments about the
24 operating experience in the United States, which was,
25 if you like, I guess part of the reason indicated for

1 the extension to 40 years. They seem to say that:

2 "This life expectation is supported
3 by experience of fossil plant operation
4 in the United States."

5 Then they go on down through the
6 paragraph - which I do not propose to read - talking
7 about start/stop as opposed to continuous running and
8 how they used to think that would make a difference,
9 but they found out it maybe isn't all that significant.
10 And the last sentence is:

11 "The fact that a significant number
12 of U.S. fossil generating facilities have
13 been operating for more than 35 years and
14 are expected to continue to operate
15 beyond 40 years supports the service life
16 extension for Ontario Hydro's fossil
17 generating stations."

18 A. Yes.

19 Q. All right. Now, the following year,
20 I really wanted to ask you about this comment. Were
21 you on the committee in this year, 1986, which--

22 A. I believe so.

23 Q. --basically starts at the bottom of
24 page 85 in this, in Exhibit 166. And there, the
25 committee says that:

1 "It is recommended that: The
2 extension of the estimated average
3 service life expectancy for fossil
4 generating stations to 40 from a range
5 from 30-35 be deferred pending the
6 results of the Demand/Supply Options
7 Study."

8 And then goes on to say that:

9 "Implementation of the service life
10 extension was deferred for the purposes
11 of rate setting and accounting in
12 consideration of a recommendation made by
13 the OEB."

14 I guess what I wanted to ask you about
15 was, am I correct that the choice of a service life,
16 whether it be 30, 35 or 40 years has significance for
17 rate-setting purposes?

18
19
20
21
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23
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25 ...

1 [10:50 a.m.] A. That is what I testified to in my
2 direct evidence.

3 Q. What is the significance of it?

4 A. Life affects depreciation, which
5 affects rates.

6 Q. What was the concern then of the OEB
7 about extending the life from 30 to 40 years that you
8 deferred making that --

9 A. Two factors come to mind. One is the
10 concern that the DSP, the initial stages of the
11 demand/supply planning activity were going on, and they
12 felt that a decision about the life of the future
13 plants would be influenced by whether or not they had a
14 role in the Demand/Supply Plan as it ultimately
15 evolved.

16 Similarly, it was a period of rapid
17 development in environmental regulations and
18 environmental consciousness, and they were concerned
19 that the plants would be able to meet environmental
20 standards for the remainder of their lives. And we
21 satisfied the OEB on those accounts, a year or two
22 later, and they agreed that the life should be 40
23 years.

24 Q. I see that when you go to the 1988
25 extract, which is on page 80, it recommends that the

1 average life expectancy for fossil generating stations
2 be extended to 40 years, from the current range of 30
3 to 35.

4 A. Yes.

5 Q. Am I right in capturing this, that
6 when you move from, say, the 30 years to the 40 years
7 over the course of these extracts, you do that based on
8 looking at in part what the American experience is
9 doing, in part of what the performance has been on the
10 existing fossil plants, and then making some judgments
11 about it, what is a reasonable number?

12 A. In my direct evidence I looked at
13 four factors that are important and various ways in
14 which those judgments are verified or checked, and
15 those that you have described are among them, I
16 believe.

17 Q. Let me move on to talk about
18 transmission. What is the life expectancy of
19 transmission?

20 A. I am not in a position to testify on
21 transmission life.

22 Q. Mr. Barrie, can you help us out?

23 MR. BARRIE: A. To the best of my
24 knowledge, transmission is 50 years plus.

25 MR. SNELSON: A. I believe that it is of

1 the order of 50 years for some of the major facilities,
2 but that there are facilities such as wood pole
3 transmission lines that have shorter lives.

4 But, I don't think any of us are
5 particularly expert on transmission life, but we will
6 answer any questions you have to the degree of our
7 capability. Beyond that, specific transmission
8 questions will be dealt with in Panel 7, but I am not
9 sure that there is a depreciation transmission expert
10 on Panel 7.

11 Q. I will take it up with Panel 7. I
12 guess the real question is, what assumptions are made,
13 can you just help us out with the assumptions in the
14 Demand/Supply Plan about the life of transmission, life
15 expectancy of transmission?

16 A. The assumption of the Demand/Supply
17 Plan is that an adequate transmission system will be
18 maintained or built to incorporate additional
19 generation as and when required.

20 Q. I appreciate that. I was asking
21 about the life expectancy of transmission.

22 A. Well, implicit in that assumption is
23 that if transmission life is short, then transmission
24 life be replaced or refurbished or rebuilt.

25 You don't need a specific assumption

1 about the life of transmission for the statement that I
2 made.

3 THE CHAIRMAN: Excuse me. Did you say
4 that there would or would not be a depreciation person
5 on Panel 7 about transmission?

6 MR. SNELSON: There will be planning
7 people on Panel 7 to deal with transmission, and I am
8 not sure that any one of them is specifically expert in
9 depreciation of transmission.

10 THE CHAIRMAN: But is this a depreciable
11 item for setting rates?

12 MR. SNELSON: Yes.

13 THE CHAIRMAN: So, it's significant to
14 that extent at least.

15 MR. SNELSON: It's certainly significant
16 in the rate setting process.

17 THE CHAIRMAN: And also in the operation
18 process, too, I would think. There would have to be
19 some planning of that nature.

20 MR. SNELSON: It's certainly an issue in
21 the planning of the transmission system and the
22 refurbishment and replacement of old transmission lines
23 is a factor in the planning of the transmission system,
24 and it's a significant factor.

25 THE CHAIRMAN: And did you say that

1 whoever comes on Panel 7 would be able to deal with
2 those questions?

3 MR. SNELSON: Whoever comes on Panel 7
4 will be able to deal with the questions from a planning
5 perspective. So, from a physical aspect of what,
6 physically, do we have to do because transmission lines
7 are getting old and wearing out, then they will be able
8 to handle that sort of question. I am not sure whether
9 they will be fully cognizant of all of the issues
10 surrounding the depreciation treatment of transmission.

11 THE CHAIRMAN: Mr. Starkman?

12 MR. STARKMAN: Q. Mr. Snelson, on that
13 point, the transmission costs are part and parcel of
14 avoided cost calculations and will they be dealt with
15 in Panel 3 to any extent?

16 MR. SNELSON: A. They will be dealt with
17 at one level in Panel 3, as a general level in Panel 3,
18 and if more detail is required it will have to be dealt
19 with by Panel 7.

20 Q. Mr. Taborek, the last area I really
21 wanted to deal was the life expectancy of the nuclear
22 plants, and I think we are going to deal with most of
23 these questions in Panel 9, but just on the issues that
24 you have testified to up to now, I take it the initial
25 assumption on the nuclear units was 30-year life

1 expectancy.

2 MR. TABOREK: A. The "A" stations were
3 designed to 30 years and the "B" stations to 40 years.

4 Q. Just on the depreciation, without
5 getting too far into it, when you do that, you have a
6 30-year life expectancy, from a rate setting point of
7 view does that mean that the cost is amortized over the
8 30-year period, or its 30-year life expectancy?

9 A. Yes. The purpose of depreciation is
10 to ensure that the people who get the benefit of the
11 facility pay for the facility. So, it's vitally
12 important from a point of view of the equitable
13 treatment of our customers to ensure that the lives are
14 neither too short nor too long.

15 Q. So that obviously if a life
16 expectancy was 40 years then would be amortized over a
17 10-year longer period?

18 A. Yes.

19 Q. And that it would be somewhat of a
20 lesser impact upon the rates--

21 A. Yes.

22 Q. --because you have a longer
23 amortization? Is that fair, without get into what the
24 impact would be, it would be lesser?

25 A. Yes.

1 MR. SNELSON: A. To be more precise, Mr.
2 Starkman, the life of the generating station is the
3 maximum life for any part of the generating station.

4 So, parts of the generating station that
5 are expected to wear out or need to be replaced in less
6 than the life of the generating station, will be
7 depreciated over shorter periods of time. Each major
8 type of asset will be depreciated over life that is a
9 function of that asset's life, up to a maximum of the
10 station life.

11 Q. So, you are saying that the station
12 life, if you go with 30 years, it's an average of the
13 sum of its parts?

14 A. No.

15 MR. TABOREK: A. No, it's the maximum.

16 It's as if the proverbial axe, the head
17 and the handle, each have different lives, but in no
18 case to exceed 30 years, 40 years, et cetera.

19 Q. When Hydro sets the life expectancy
20 of a nuclear station, does the depreciation question
21 have some significance?

22 A. No.

23 Q. It's not significant?

24 A. Well, be more precise. Do you mean
25 does the rate impact?

1 Q. Yes. Isn't Hydro concerned about the
2 rate impact, so there is some desire to --

3 A. No. For depreciation purposes we are
4 specifically directed and we ensure that rate impact is
5 not factor in our decisions. The equity to the
6 customer, the equitable treatment of the customer is
7 the factor that counts.

8 Designing the life of the plant is a
9 factor in its economics, but I believe that the DSP
10 notes that it is not a powerful factor.

11 Q. Can we look at Interrogatory 2.7.85,
12 which was given out separately at the beginning under
13 the one that follows this May 31, 1991 memorandum.

14 Mr. Taborek, did you find that
15 interrogatory?

16 A. Yes.

17 Q. And I just wanted to ask you to
18 comment on some of the things that, I guess, are in the
19 answer. I am reading here about four lines from the
20 bottom, five lines from the bottom.

21 "The values and specifications are
22 meant to be challenging targets.

23 Variations about these targets are
24 considered in evaluating projects.

25 Please note that gross generation figures

1 are not available," and so on.

2 Then it provides some specifications in
3 the charts at the bottom and on the next page.

4 I just didn't understand what was meant
5 by "the values and specifications are meant to be
6 challenging targets." I don't know understand what was
7 being conveyed there.

8 A. You would not ask a designer to
9 underachieve; you would ask a designer to aim high.

10 Q. So, a designer aimed high to set a
11 challenging target; is that correct?

12 A. Well, the specification is aimed in
13 that direction.

14 MR. SNELSON: A. The specification we
15 are talking about is a general specification for the
16 generating station as to how it is to work on the
17 system that is prepared by the planning division and
18 given to the design and construction branch to guide
19 their design of the facility.

20 Q. All right. What are challenging
21 targets?

22 A. Some of the availabilty factors that
23 are given in the tables below are challenging targets
24 that were given. The system planning evaluations that
25 are referred to in the next sentence, variations about

1 these are targets are considered in evaluating
2 projects. Those evaluations referred to are system
3 planning evaluations, and system planning evaluations
4 of nuclear generating plants have considered quite wide
5 variations in capacity factors in making decisions as
6 to whether to go ahead with the plants.

7 Q. Mr. Taborek, can we look at the
8 second page of the answer here. Now, a couple of
9 things I wanted to ask you about. One is, in the line,
10 assume nuclear unit economic life at the time of
11 planning specification, it's a solid 30.

12 MR. TABOREK: A. Yes.

13 Q. And that includes, it looks to me,
14 like the "B" units, at Bruce and at Darlington.

15 A. Well, you will notice that there is a
16 data associated with them in the early 70s, 1974 in the
17 case of both of the "B" units. I was referring to the
18 later dates that were established.

19 Q. Well, I guess my confusion is, just
20 try and help just me out. There were some dates
21 established for the economic life of the "A" and "B"
22 units of 30 years.

23 A. Yes.

24 Q. Maybe in the mid-70s there.

25 A. Yes.

1 Q. And then you say the "B" units were
2 changed to 40 years. Do you know when that happened?

3 A. No, I don't.

4 Q. And do you know who made the change?

5 A. No, I don't.

6 Q. And do you know why the change was
7 made?

8 A. Well, I think, maybe, now that we are
9 getting into the details of the design and the output
10 of that, I would perhaps refer to you the nuclear
11 panel.

12 THE CHAIRMAN: But they are all at 40
13 now; is that right?

14 MR. TABOREK: Yes.

15 THE CHAIRMAN: "A"s and "B"s and
16 Darlington?

17 MR. TABOREK: Yes.

18 MR. STARKMAN: Q. These numbers of 30
19 that I am looking at here, were these challenging
20 targets?

21 MR. TABOREK: A. At the time, yes.
22 Sometimes we meet our targets and more.

23 Q. Now, I know you talked briefly to
24 others on the performance, and I just don't want to get
25 too far into it until Panel 9, but I am interested to

1 know why you have confidence that these units will run
2 for 40 years. You haven't had one run for 40 years?

3 A. That's correct.

4 Q. No one has, I take it?

5 A. As far as I know.

6 Q. Am I right that the oldest one is 21
7 years old?

8 A. Yes.

9 Q. The older units, just generally
10 speaking, the older units, meaning the units, between
11 10 and 20 years old, have a lower performance or a
12 worse performance than the ones between one and ten?

13 A. No, that's not correct.

14 Could you state your question again and
15 make sure I understand it?

16 Q. I was suggesting to you that the
17 older of Hydro's existing units have worse performance
18 than the newer ones?

19 A. I think that's too general a
20 statement. There are some elements of that, but that's
21 too general to agree with totally.

22 Q. Let me go back to the original
23 question then. What is it that gives you confidence
24 these units will run for 40 years?

25 ...

1 [11:12 a.m.] A. We go back to the four criteria that
2 I mentioned. One is - take them in order - the ability
3 to maintain the units over their lives. We have
4 experience, we now have 20 years of experience with
5 operating units and we now have close to 20 units
6 in-service, we will soon have 20 in-service, so we have
7 a lot more experience.

8 In addition, we have looked at the units
9 and we have mentioned the fact that it is not just the
10 station as whole but the components. We have looked at
11 the various components. We have determined through
12 various programs what components could be life limiting
13 for the station as a whole and what could be routinely
14 replaced.

15 The economics of the operation of a base
16 load station is such that it is clearly economic to
17 replace those components that can be replaced. Those
18 components that could be life limiting we have special
19 programs in place to monitor the performance of those
20 particular components and to ensure that they receive
21 the requisite care that will enable them to reach 40
22 years.

23 The second factor is economics and is
24 there an alternative technology which will perform
25 their function better. I think the fact of the DSP and

1 that they are in the DSP gives an indication that that
2 would not cause a replacement of them, early
3 retirement.

4 Environmental and regulatory factors, we
5 similarly judged that while regulations will change and
6 they have in the past, that the units will be able to
7 incorporate those and continue to operate for 40-year
8 lives.

9 And then the fifth, the availability of
10 approvals for new generation, I think is not a factor
11 in 40 years because we wouldn't attempt to take them
12 out before 40 as we now see it.

13 Q. So, those are the factors which give
14 you confidence that these facilities will run for 40
15 years?

16 A. Yes.

17 Q. And that they will run at their
18 projected 80 per cent capacity?

19 A. They will run at the forecast
20 capacity factors with the forecast maintenance and the
21 future actions we will take in future circumstances.

22 Q. Mr. Taborek, you told us, I believe,
23 the other day that they were hiring about one thousand
24 people to increase staff levels in the nuclear program?

25 A. Yes.

1 Q. Why is there a need to do that?

2 A. Because we basically indicated the
3 need for more maintenance and rehabilitation and we
4 have indicated capital funds, OM&A funds and staff
5 being made available to do that.

6 Q. What are they going to do that hasn't
7 been done, heretofore?

8 A. I would like to refer you to the
9 nuclear panel for the deployment of those people.

10 Q. I believe you said that it was a
11 matter of logic that hiring these additional people
12 would improve the performance of the nuclear plants?

13 A. Putting people to work on maintenance
14 will improve the performance.

15 Q. You got that information, I take it,
16 from the nuclear people?

17 A. The logic?

18 Q. Just a matter of logic?

19 A. The logic is logic, but the nuclear
20 people, I'm sure, would support that.

21 MR. SNELSON: A. A very simple example,
22 Mr. Starkman, is that we have had a number of cases of
23 units which have failed for some equipment failure,
24 which have sat idle for a while for shortage of people
25 to work on them. So, that is clearly identifiable as

1 additional outage time that is due to a shortage of
2 trained and qualified operating staff and maintenance
3 staff.

4 Q. Mr. Snelson, I took it that the
5 matter of logic is that if you throw more bodies at it
6 the problem will somehow improve?

7 MR. TABOREK: A. I don't think that is
8 the logical statement I proposed to you.

9 Q. I don't understand. What was the
10 logical statement?

11 MR. SNELSON: A. I have given you a
12 relatively simple example, and I am sure that the
13 people on Panel 9 would be able to give you a lot more
14 examples of how this would help.

15 Q. Mr. Snelson, but isn't it true that
16 these failures were not planned?

17 A. That's one of the reasons that we
18 need to have more people. If there are failures that
19 are occurring then if they were occurring on a planned
20 basis you would plan them to only do them at times when
21 you had staff available to do them, you would not take
22 a planned outage at the time when you didn't have staff
23 to work on the units. But there have been cases of
24 forced outages that have taken longer to repair than
25 they should have done because of a shortage of trained

1 operating and maintenance staff.

2 Q. What I'm unclear on, are the thousand
3 people to help clean up or fix up problems that
4 occurred, or do you think these thousand people will
5 help prevent problems that might occur?

6 A. I think they're going to do both.

7 Q. How are they going to help prevent
8 problems that might occur?

9 A. In the way I have just described is
10 one way, but Panel 9 will give you more detail.

11 MR. STARKMAN: Those are my questions,
12 Mr. Chairman. Thank you very much.

13 THE CHAIRMAN: Thank you, Mr. Starkman.
14 Just a moment, Mr. Starkman.

15 DR. CONNELL: I had a question to the
16 panel. I can't give you the transcript reference
17 because I just found this in my own notes.

18 I would just like a little further
19 elaboration of a point. I have a note that at one
20 point Mr. Snelson observed that it was possible to
21 optimize the generations system without any particular
22 consideration of the transmission system shortly after
23 Mr. Barrie observed that it is important that the
24 development of the plans for transmission and
25 generation go hand in hand. I wonder if you could

1 resolve that for me?

2 MR. SNELSON: Maybe I can help you there.

3 I did not intend to say that the generation could be
4 done totally in isolation from the transmission. I
5 think I've also said elsewhere that the consideration
6 of transmission that is relevant to this hearing is
7 those aspects of transmission that affect the choices
8 that you'll make in generation.

9 So, clearly there is an interaction, but
10 the economics of power systems are such that the costs
11 of generation, in both capitol and fuel and operation
12 are considerably higher, several times higher than cost
13 of transmission. Usually the solution to a problem,
14 when there is a combined generation and transmission
15 problem, usually the solution is to make the changes to
16 the transmission system to adequately use the
17 generation system. It's quite unusual to be in a
18 situation where in the event of a combined generation
19 and transmission problem the right solution, for
20 instance, is to close a generating plant down in a
21 place where there isn't adequate transmission and to
22 build a new generating plant in some other place.
23 There are points through these considerations where
24 transmission and generation together become quite
25 significant, but generally speaking, because so much of

1 the expense is associated with generation it is
2 economical to build the transmission system to suit.

3 DR. CONNELL: Any further further comment
4 from Mr. Barrie?

5 MR. BARRIE: No. I think the particular
6 quote you have drawn from me, I was relating to the
7 situation at Bruce where the two, generation expansion
8 and transmission expansion were so clearly out of
9 synchronism, I think was the word you used, that it did
10 cause us severe problems from '87 through 1990. It was
11 in that context that I said that both transmission and
12 generation have to be planned together. I don't think
13 that detracts from anything Mr. Snelson was saying,
14 though.

15 DR. CONNELL: Yes. Thank you. My other
16 question concerns the cost to the customer of forced
17 outages and, of course, the reserve margin.
18 Mr. Starkman raised the concept of cross subsidization
19 which, I think, the panel resisted. I wonder if you
20 think that the concept of an insurance policy is one
21 that sits better with you, presumably the cost of the
22 reserve margin is added to rates across the system and
23 the increment in the rate then might be regarded as the
24 insurance premium, is that a possible way of thinking?

25 MR. TABOREK: I think you can approach

1 and put different models on the phenomena, and I can
2 see how you would go to an insurance. It is a strange
3 policy, though, sir, that I think you would be selling.
4 You are selling the same protection to all people for
5 the same price and the significant changes in the
6 degree of coverage do not result in significant changes
7 in your premium, period.

8 DR. CONNELL: And it would not cover you
9 against transmission faults?

10 MR. TABOREK: Yes.

11 THE CHAIRMAN: But it does have the low
12 probability, high damage aspect of insurance to it?

13 MR. TABOREK: Yes.

14 DR. CONNELL: Thank you, that's all.

15 THE CHAIRMAN: Any further questions
16 arising out of that?

17 MR. STARKMAN: Q. Just one question to
18 Mr. Barrie. Following Mr. Snelson's comments that in
19 this interplay between generation and transmission it
20 is, if you like, cheaper to fix the transmission. I
21 just want to ask you whether it's your belief that the
22 transmission system at Hydro is good as it can be, I
23 mean, have they done what Mr. Snelson implied would
24 naturally flow? I'll just leave the question at that.

25 ...

1 [11:20 a.m.] MR. BARRIE: A. Is your question, do I
2 believe the transmission system is as good as it can
3 be?

4 Q. Yes

5 A. No. The transmission system could be
6 a lot better. I think for all intents and purposes,
7 though, the transmission system as it exists today does
8 allow us to use any generation anywhere to satisfy any
9 load, except for those specific examples I quoted in my
10 evidence.

11 So, we do regard the transmission system
12 as one big whole, so that we can use generation
13 anywhere. Is that what you are driving at?

14 Q. Well, in a sense. I mean, you have
15 introduced a whole lot of other concepts. But I mean,
16 what I am really getting at is that Mr. Snelson
17 suggests that it is cheaper to fix transmission, and I
18 take "fix" to be in its broadest sense, improve
19 transmission. You would do that before you would build
20 a new generation.

21 What I am really asking is, is there room
22 to fix or improve or optimize, rationalize the
23 transmission system in a way that will improve the
24 availability and delivery of electricity?

25 A. I think I did in previous testimony

1 outline the major programs underway over the next 10
2 years for both transmission line refurbishment and
3 transmission station rehabilitation. There are major
4 expenditures involved, over \$100-million a year from
5 1993 onwards for those two programs. That will be not
6 to not to provide new transmission facilities, but just
7 to bring the existing up to the standard of performance
8 we need. I don't think I have any more to add.

9 MR. STARKMAN: Thank you very much, Mr.
10 Barrie.

11 THE CHAIRMAN: Thank you, Mr. Starkman.
12 Is there anyone here this morning from
13 Northwatch.

14 MR. STARKMAN: Mr. Chairman, Mr. Kelsey
15 spoke to our office early this morning. He said he was
16 tied up in Windsor and he would be ready to go at the
17 end, provided the hearing was still continuing on this
18 panel on Monday.

19 THE CHAIRMAN: All right. Well, if we
20 finish today - I don't know if we will or not - that
21 will be another matter. But City of Toronto will be
22 next, followed by the Consumers' Association.

23 I think rather than fragment your
24 cross-examination, Mr. Poch, we will take the morning
25 break.

1 THE REGISTRAR: The hearing will recess
2 for 15 minutes.

3 ---Recess at 11:25 a.m.

4 ---On resuming at 11:46 a.m.

5 THE REGISTRAR: Please come to order.
6 The hearing is again in session. Please be seated.

7 THE CHAIRMAN: The trip to Darlington,
8 those going on that trip will assemble at 8:45 tomorrow
9 morning at the entrance to Building 2200, which is this
10 building, I believe. It is just next to the Mandarin
11 Restaurant, 8:45. The bus will be leaving at nine
12 o'clock, but the bus will not be parked on Yonge
13 Street. It will be parked somewhere else, so you will
14 be paraded by someone from Hydro to wherever the bus
15 is.

16 Number two, on Monday morning, June the
17 12th--

18 MRS. FORMUSA: Tenth.

19 THE CHAIRMAN: --at 10:00 a.m., there
20 will begin the scoping session for Panel No. 3.

21 MS. MORRISON: Monday, June 10th at 9:00
22 a.m..

23 THE CHAIRMAN: June the 10th, I am sorry.
24 June 10th. I should remember. That is my wife's
25 birthday. June the 10th, Monday, June the 10th at ten

1 o'clock.

2 MS. PATTERSON: Nine.

3 THE CHAIRMAN: Nine? Well, all right.

4 Let me start again. Monday, June the 10th at nine
5 o'clock, the scoping session on Panel 3 will commence.

6 On Wednesday, June the 12th, it is
7 anticipated that Panel 3's evidence will commence,
8 subject to, of course, Panel 2 having been completed by
9 that time.

10 If Panel 2 is not completed today, which
11 seems a possibility, it will commence again following
12 the completion of the scoping session on Panel 3.

13 Any questions about that or any other
14 matters? (No response) All right. Mr. Poch.

15 MR. H. POCH: Thank you, Mr. Chairman.

16 I have provided counsel for Hydro and the clerk with
17 materials that I may be referring to during
18 cross-examination. There are bundles of these
19 materials here, located on the front desk, to my left,
20 for anybody that wishes to pick them up at this time.

21 CROSS-EXAMINATION BY MR. H. POCH:

22 Q. Mr. Taborek, on the overhead machine,
23 there is a piece of paper. If you would be kind enough
24 to turn it on and place it on correctly.

25 MR. H. POCH: Mr. Chairman, this is an

1 extract from Exhibit 79 with a heading placed on the
2 top, "City of Toronto and Environs - Major Ontario
3 Hydro Facilities." That was placed on by our
4 consultants and the grey area outlining the Corporation
5 of the City of Toronto's boundaries and area have also
6 been placed on by our consultants. Other than that,
7 that is an extract that has been enlarged from from
8 Exhibit 79.

9 I have provided you with a coloured copy
10 separate from the other materials and I have also
11 provided you with a blowup of the key, the legend from
12 that document.

13 THE CHAIRMAN: Perhaps this document
14 should be made an exhibit. Number...?

15 THE REGISTRAR: 167, Mr. Chairman.

16 THE CHAIRMAN: Thank you.

17 ---EXHIBIT NO. 167: Extract from Exhibit 79, entitled
18 "City of Toronto and Environs -- Major
19 Ontario Hydro Facilities."

20 MR. H. POCH: Q. Now, Mr. Taborek, you
21 are closest to this blowup and perhaps you can help us
22 through the major points that I would like to draw to
23 the Board's attention.

24 MR. TABOREK: A. Certainly.

25 Q. The City of Toronto, would you agree
it is approximately shown in the grey outlined area?

1 A. (Circling area with a pen)

2 Q. That appears to be the correct area,
3 does it? Does anyone have any dispute with that?

4 MR. BARRIE: A. No. That seems fine.

5 Q. Okay. And the R.L. Hearn Generating
6 Station, the mothballed station, if you could point
7 that out, also, please.

8 MR. TABOREK: A. (Indicating)

9 Q. And that is located near the foot of
10 the Leslie Street Spit; is that correct?

11 MR. BARRIE: A. That is correct.

12 Q. On Unwin Avenue?

13 A. Yes.

14 Q. And that is south of the Gardiner
15 Expressway?

16 A. Yes.

17 Q. And the Lakeview Generating Station,
18 that is located, as Mr. Taborek is pointing it out, in
19 what is Mississauga, if I am not mistaken; is that
20 correct?

21 A. It is in Mississauga, yes.

22 Q. And that is not right on the
23 lakeshore, is it? It is a little bit inland?

24 A. No. It is on the lake.

25 Q. It is right on the lake? Okay. And

1 the main 500 kV transmission corridor is shown in red;
2 is that correct, running approximately --

3 A. Oh, yes, yes.

4 Q. And that is north of Highway 401 in
5 the Finch-Steeles corridor, approximately?

6 A. That is right.

7 Q. And then there are a number of
8 smaller transmission corridors, including the major
9 corridor coming in parallel to what is Kingston Road,
10 just to the north of Kingston Road; is that correct?

11 A. Yes. That is the Cherrywood-Leaside
12 230 kV.

13 Q. Yes. Then the blue squares within
14 the City of Toronto boundaries, those are bulk
15 transformer stations, are they?

16 A. Yes.

17 Q. This accurately represents the
18 general area around the City of Toronto, the major
19 distribution system, the transformer stations and the
20 generating stations; is that correct?

21 A. One has to be careful using the word
22 "distribution". It is the major transmission and
23 generation. We define "distribution" as less than 50
24 kV. I don't think you show anything less than 50 kV
25 here.

1 Q. Fair enough. And the Pickering
2 Nuclear Generating Station, Mr. Taborek, where is that?

3 MR. TABOREK: A. (Indicating)

4 Q. Okay. And the proposed Darlington
5 plant and the existing facilities; approximately where
6 would they be to the right?

7 A. To the east here.

8 Q. Right next to Lake Ontario Steel?

9 A. Just beyond the edge of the map.

10 Q. Just beyond Lake Ontario Steel, I
11 take it, not very far away?

12 A. I am not familiar with the location
13 of Lake Ontario Steel.

14 MR. SNELSON: A. It is the other side of
15 Oshawa and I don't believe you have Oshawa on this map.

16 Q. Now, panel, if we could turn to the
17 Lakeview Generating Station in Mississauga, and I take
18 it that that is the third largest coal-fired generating
19 station that is operative in the province; is that
20 correct?

21 MR. BARRIE: A. I think it is actually
22 second largest when everything is operating. It is
23 slightly larger than Lambton.

24 Q. Okay.

25 A. But it is very close to the size of

1 Lambton.

2 Q. And that has eight units within the
3 site?

4 A. It does, yes.

5 Q. And the fuel that is currently used
6 is coal; is that correct?

7 A. It is.

8 Q. Is that a high- or a low-sulphur
9 content fuel?

10 A. There are actually two coal piles at
11 Lakeview at the moment; one medium sulphur, 1.4 per
12 cent, and one low sulphur 0.9 per cent sulphur coal.

13 THE CHAIRMAN: I am sorry. I didn't get
14 the figure. The low sulphur is what percent?

15 MR. BARRIE: I said 0.9. Maybe it's 0.8.
16 It's of that order. It's just below 1 per cent sulphur
17 coal, anyway.

18 THE CHAIRMAN: And the medium is 1.4?

19 MR. BARRIE: Yes.

20 MR. H. POCH: Q. Now, there is
21 refurbishment of the Lakeview Station on-going at this
22 time; is that correct?

23 MR. BARRIE: A. There is.

24 Q. And when that refurbishment is
25 complete, will that facility be using a low or medium

1 sulphur content fuel?

2 A. Low sulphur.

3 Q. And will it be using a natural gas
4 fuel, also?

5 A. No.

6 Q. Will the plant have capability of
7 transferring to natural gas?

8 A. I am not sure. I would have to hand
9 off to one of my planning colleagues.

10 MR. SNELSON: A. Not without changes to
11 the facilities.

12 Q. And what extent of changes would be
13 necessary, Mr. Snelson?

14 A. You would have to have a gas pipeline
15 to the site, there would be requirements for changes to
16 the burners in the boilers to burn natural gas, and the
17 there may be other consequential changes throughout the
18 plant. But that would be the minimum change to allow
19 you to burn natural gas.

20 Q. Has there been any costing of the
21 conversion to natural gas undertaken by Hydro in coming
22 to the DSP?

23 MR. TABOREK: A. Yes. We routinely look
24 at the conversion of all our coal stations to gas and
25 we also mentioned again recently that repowering

1 options, including gas, are part of what are being
2 looked at as further options for Lakeview.

3 Q. And, Mr. Taborek, do you have a
4 ballpark figure as to what it would cost to change over
5 to natural gas within the next two or three years to
6 meet all of the current environmental standards?

7 A. No.

8 Q. Has there been any costing undertaken
9 for any other time period?

10 A. Well, we do have cost estimates for
11 gas conversions. I do not have them with me. Those
12 numbers, however, may become dated quickly with the
13 repowering options we are looking at, the work that is
14 going on about Lakeview's future. But again, I think
15 here, what you may be getting into is the kind of
16 technical detail that the fossil panel would perhaps be
17 most appropriate to address.

18 MR. H. POCH: Mr. Chairman, I will defer
19 that line until the fossil panel.

20 THE CHAIRMAN: All right.

21
22
23
24
25 ...

1 [12:00 p.m] MR. H. POCH: Q. When was the Lakeview
2 plant commissioned?

3 MR. TABOREK: A. It would have been
4 commissioned over a period of time. I believe the
5 first unit was...

6 MR. SNELSON: A. It's given in Chapter
7 4.

8 Q. Would 1966 be an appropriate date?

9 A. It was over a period of time and we
10 actually have the dates in the Demand/Supply Plan
11 document. Lakeview was commissioned, the first unit in
12 1962 and the last unit in 1969.

13 Q. Thank you.

14 THE CHAIRMAN: You are reading from?

15 MR. SNELSON: I am reading from figure
16 4-20, on page 4-20 of Exhibit 3.

17 THE CHAIRMAN: Thank you.

18 MR. H. POCH: Q. And you would agree
19 that we are looking at a 40-year period of
20 commissioning from the start-up date of that plan and
21 taking us to approximately 2002 through 2009 then; is
22 that correct, for decommissioning?

23 MR. SNELSON: A. The 40-year life would
24 take you to those dates.

25 Q. Now, what date are we talking about,

1 2002, 2009?

2 A. The lives that have been identified
3 in the Demand/Supply Plan are the 40th anniversary of
4 the in-service date of each unit, which would be 2002
5 for the unit that was in-service in 1962, 2009 for the
6 unit in service in 1969, and dates in between those for
7 the intervening units.

8 Q. And has there been any planning for
9 the site after 2009?

10 A. It's identified as a potential site
11 for -- as an illustrative site for future generation.

12 Q. Has there been any active planning
13 aside from an initial identification?

14 A. Not to my knowledge.

15 Q. Now, we referred originally to the
16 rehabilitation of the plant that's ongoing. Could you
17 provide me with some detail of what that rehabilitation
18 constitutes?

19 MR. TABOREK: A. There is an
20 interrogatory in which the various areas in which work
21 is being done are identified.

22 MR. SNELSON: A. The numbers I have are
23 2.9.11, 2.9.27 and 2.24.15 as having discussion of
24 Lakeview and Lambton rehabilitation.

25 Q. I will have reference to those

1 outside of the room.

2 I am wondering if you know what the exact
3 cost of the proposed rehabilitation for the Lakeview
4 plant is? I have seen it brought together with another
5 plant.

6 MR. TABOREK: A. Yes. \$986-million.

7 THE CHAIRMAN: \$986-million?

8 MR. TABOREK: Yes.

9 THE CHAIRMAN: Could you just briefly
10 describe the nature of the rehabilitation. Is that
11 possible to do in a brief form?

12 MR. TABOREK: Basically, engineering
13 inspections were done of the entire station. The units
14 were actually stripped down and examined. Work that
15 immediately comes to mind involves boiler tubes, it
16 involves new control systems. There are perhaps 20
17 areas in total. But it's a fairly thorough
18 going-through the station.

19 MR. BARRIE: It's a comprehensive unit
20 rehabilitation, involving everything that Mr. Taborek
21 mentioned, plus all of the auxiliary equipment. They
22 looked at the pumps, the fans, the motors, as well as
23 the primary equipment, that is the boiler and the
24 turbine unit itself.

25 MR. SNELSON: I think we should also give

1 you the current status, and that is that the first four
2 units are committed for thorough rehabilitation and
3 that work is underway. On two units it will be nearing
4 completion, on two units it's underway at the moment.

5 The other four units are on hold,
6 subject to review, because of rising cost estimates and
7 rising scope of work that is involved. Decisions will
8 be made later this year, I believe, as to the scope for
9 the last four units.

10 THE CHAIRMAN: Now, that you give it to
11 me, I remember, this was dealt with in another
12 cross-examination, I think.

13 MR. BARRIE: It was, yes.

14 DR. CONNELL: Could I just be sure how
15 much units 986 refers to? Is that four?

16 MR. TABOREK: 850-million of that is for
17 the first four units, and 136 - is that the remainder?
18 Yes - is for the last four units. And that is because
19 relatively full commitments have been made for the
20 first four units; the commitments on the latter units
21 have yet to be decided.

22 DR. CONNELL: And this number doesn't
23 include the scrubbers?

24 MR. TABOREK: No, Lakeview is last on the
25 list to receive scrubbers after Nanticoke and Lambton.

1 MR. SNELSON: It would be very difficult
2 to have add scrubbers at Lakeview.

3 THE CHAIRMAN: Just so I understand it,
4 136 may then be increased if the decision is made to go
5 ahead; is that right?

6 MR. TABOREK: That's correct. That's one
7 of the possibilities of the further work that's going
8 on.

9 MR. H. POCH: Q. And if scrubbers are
10 added then there will be further cost for that?

11 MR. TABOREK: A. Yes.

12 Q. What order are we looking at, what
13 order of magnitude?

14 A. Our scrubber order of preference for
15 precedents for least cost fitment would be to go
16 through the Lambton station, through the Nanticoke
17 station and then through the Lakeview station.

18 Q. And what magnitude of cost are we
19 talking about at Lakeview?

20 A. Well, first of all, we don't have
21 detailed cost estimates, but to a first approximation,
22 we have mentioned \$457-million dollars for two
23 scrubbers at Lambton. Those are for 500 megawatts
24 units. 300 megawatts units might be cheaper, but on
25 the other hand, there are particular difficulties in

1 fitting at Lakeview, so that that might offset that.
2 So, we haven't made detailed estimates for Lakeview
3 scrubbers.

4 Q. So, approximately?

5 A. 400-million for round numbers, a
6 pair.

7 Q. And that would take us to today's
8 environmental standards, to allow compliance to today's
9 standards?

10 A. No, Lakeview...

11 MR. BARRIE: A. We already do comply.

12 MR. TABOREK: A. Yes, we comply.
13 Scrubbers would go to Lakeview. Since we have a fixed
14 tonnage limit, what would take scrubbers to Lakeview is
15 if, for some reason, our coal burns got so high for
16 whatever reason, that we had to go through all of
17 Lambton, all of Nanticoke and then go to Lakeview, then
18 they would be required to meet today's limits.

19 Q. Panel, are you aware what air
20 emissions are released from the Lakeview plant?

21 MS. RYAN: A. We, in fact, answered an
22 interrogatory along those lines. Interrogatory
23 2.14.70, provided the detail of specific testing that
24 was carried out at Lakeview to identify emissions from
25 the station.

1 Q. Did that include trace metals?

2 A. Yes, it did. And organics.

3 Q. And the full organic scan?

4 A. Yes.

5 Q. Trace organic scan?

6 A. Yes.

7 Q. And the results are shown in that
8 answer; is that correct?

9 A. Yes.

10 Q. Was there air modelling undertaken of
11 the air quality in the vicinity of the Lakeview
12 generating station when these tests were analyzed?

13 A. Yes. In fact, they took the results
14 from the tests and put them through the model under the
15 Environmental Protection Act and came up with a result,
16 and the report summary expresses the result as a per
17 cent of the current ambient air quality criteria.

18 Q. And that's Regulation 308 model?

19 A. That's correct.

20 Q. It didn't undertake any alternative
21 modelling that's been contemplated in the regulation
22 308 redrafting process; did it?

23 A. To my knowledge it did not work
24 through those models which are much more complex.

25 Q. So, you are looking at a point of

1 impingement model then?

2 A. To my knowledge.

3 Q. Instead of a source point model?

4 A. It is a source point taking it to
5 point of impingement model.

6 Q. And the geographic area of that air
7 shed was what?

8 A. The way the model works, it provides
9 the distance from the station of the maximum
10 concentration for that model. I can't find it
11 immediately.

12 I believe it was about 4,000 metres, but
13 I would have to check that.

14 Q. So, that wouldn't have extended
15 within the City of Toronto boundaries then?

16 A. No. What that means is that the
17 concentrations due to Lakeview in the City of Toronto
18 would have been less than the modelled maximum.

19 Q. But not less than ambient
20 necessarily, within the city?

21 A. Ambient is the contribution of all
22 sources, and I don't have the information to know the
23 comparisons.

24 Q. Will the panel dealing with fossil,
25 Panel 7, be able to deal with these types of issues?

1 A. My knowledge would be that the fossil
2 panel would have more information on this than we do.

3 Q. Okay. Ms. Ryan, are you familiar
4 with the air pollution index under the EPA regulations?

5 A. Yes, I am.

6 Q. And are you aware of any occurrences
7 when there have been API regulatory exceedances
8 requiring either a partial or a full shut down of
9 Lakeview?

10 MR. BARRIE: A. I can recall instances
11 where we have been required to alter the output from
12 Lakeview because of the API, yes.

13 Q. And who would require you to do that?

14 A. The Ministry of Environment.

15 Q. Do you recall when that occurred or
16 how often?

17 A. I don't have the specific dates of
18 when it occurred or how, no.

19 THE CHAIRMAN: What were you required to
20 do? I'm sorry, I didn't quite hear.

21 MR. BARRIE: We were required to reduce
22 the output of Lakeview if the pollution index reaches a
23 certain point.

24 There are actually two stages. The first
25 stage is voluntary on our part, when the index reaches

1 32. When the index reaches 50, then it is compulsory.

2 MR. H. POCH: Q. So, say, several
3 summers ago when we had an extremely hot summer, where
4 there were a great number of exceedances in the City of
5 Toronto area of that 50 level. Would that have been an
6 example of when the MOE had called upon Hydro to reduce
7 the units at Lakeview?

8 MR. BARRIE: A. It's typically the
9 weather conditions that are most difficult, yes.

10 MS. RYAN: A. I don't recall that
11 specific control mechanism being required for quite a
12 number of years.

13 Q. Would you undertake to provide me
14 with details of when since 1985 that may have occurred,
15 how often and the duration of those occurrences and to
16 what extent the plant would have had to be reduced in
17 its generating capacity?

18 A. Since 1985?

19 Q. Please.

20 MR. BARRIE: A. I will undertake that
21 because it's a separate operating issue.

22 Q. Thank you.

23 THE CHAIRMAN: So that is 142.63.

1 [12:16 p.m.] MS. RYAN: A. I know that we have done
2 air shed modelling in conjunction with our assessment
3 of the draft clean air program and what would be the
4 implications for our stations, and I know that
5 considerable work was done for our Nanticoke generating
6 station and for our Lambton generating station for
7 those air sheds. I don't have specific knowledge of
8 the information for Lakeview.

9 THE CHAIRMAN: What do you understand air
10 shed modelling to be?

11 MS. RYAN: My understanding is that it's
12 looking at not just our source in an air shed but it is
13 accounting for all of the other sources to see if the
14 combined result is acceptable air quality.

15 MR. H. POCH: Q. And in formulating the
16 DSP was any such modelling undertaken?

17 MS. RYAN: A. Not to my knowledge.

18 Q. I'm not limiting that question to
19 Lakeview, but I'm also including the Hearn and
20 Pickering generating stations.

21 That's correct, the same answer?

22 A. Same answer, yes.

23 Q. Would you move now to the Hearn.

24 Mr. Chairman, I would now like to refer
25 to the second group of materials that I have provided.

1 Perhaps we can give the bundle of the materials an
2 exhibit number?

3 THE CHAIRMAN: Are they all
4 interrogatories?

5 MR. H. POCH: No, they are not, Mr.
6 Chairman.

7 THE CHAIRMAN: Then we had better give
8 the bundle a number.

9 THE REGISTRAR: 168, Mr. Chairman.

10 ---EXHIBIT NO. 168: Document Precis, May 29, 1991.

11 THE CHAIRMAN: Thank you.

12 MR. H. POCH: Q. I have handwritten page
13 numbers at the top right for ease of reference. If we
14 could turn to page two which is Interrogatory 2.20.6
15 and that sets out a chronology of the utilization of
16 Hearn since 1970, and 1971, 1972 there was a
17 recommissioning of some of the units to run on natural
18 gas, it was originally coal-fired, and one of the
19 reasons was to help combat air pollution.

20 Does anyone know what air pollution meant
21 at that time in coming to that rationale for the
22 changeover?

23 MS. RYAN: A. Air pollution in those
24 days was the local impingement of sulphur dioxide and
25 particulate, generally, on the areas surrounding the

1 station.

2 Q. So, that was the rationale to reduce
3 those emissions aside from economic rationale?

4 A. Yes, there was an environmental
5 initiative and at the time the shorter small stacks
6 were replaced with the one stack that exists there
7 today.

8 Q. And in your answer you state that
9 Units 1 through 5 were mothballed in 1979 and '80 and
10 Units 6 through 8 were mothballed in 1983 for economic
11 reasons.

12 Can you describe what economic reasons
13 mean, in that answer?

14 MR. SNELSON: A. Basically it comes back
15 to the same time period as the Wesleyville discussion
16 we had earlier this morning. That was the time when
17 the load forecast was being adjusted to a lower rate of
18 growth and there was more generating capacity than
19 required and Hearn was one of the highest operating
20 cost plants on the system. So, when it came to a
21 decision as to which plants to close then Hearn was top
22 of the list.

23 Q. Now, would that still be the
24 situation if Hearn was restarted or reactivated today?

25 A. Hearn would still be a relatively

1 high operating cost plant, yes.

2 Q. When you say relatively high, what do
3 you mean?

4 MR. BARRIE: A. It would be more
5 expensive than all of our coal. I'm not sure how it
6 would sit compared to the oil but when we envisaged
7 bringing it back we envisaged that it would run with a
8 low capacity factor, something like 5 per cent or less
9 which applies a higher operating cost.

10 Q. Since 1984, 1985 the plant has been
11 providing voltage support for the Toronto area as noted
12 in your answer? What do you mean by Toronto area?

13 A. Well, I think your diagram -- if we
14 can refer to your diagram, i i's really the 115 kV
15 system that Hearn is connected to through to the 115 to
16 230 kV at Leaside which is the main connection to the
17 rest of the grid system. It's providing support for
18 that whole area and, indeed, is assisting in supporting
19 the voltage in the whole Metropolitan Toronto, but it
20 is specifically for that area I described earlier.

21 Q. That's as I stated by operating
22 synchronous condensers?

23 A. That's correct.

24 Q. Those are transformers, are they?

25 A. No. The machine operates as a

1 synchronous condensor, there is no megawatts being
2 delivered. We disconnect the turbine from the
3 alternator and the alternator is simply spun, and this
4 produces a voltage support. It does not require any
5 fuel, it's just there.

6 Q. So, there is no firing up of
7 combustion at all?

8 A. No, no.

9 Q. So, likewise there wouldn't be any
10 emissions to the atmosphere?

11 A. No. The burner and turbine unit are
12 shut down, there is nothing being used, it's mainly the
13 electrical side.

14 Q. Now, part or all of the plant is, in
15 the future, reactivated, and I'm not talking about the
16 utilization of CTUs but reactivation of the existing
17 eight units or some of those units that have been
18 mothballed. Would new facilities be required to
19 refurbish those units or to rework those units or bring
20 them up to today's state of the art standard?

21 A. It was mentioned in early testimony
22 that there was a plan to bring two units back at Hearn
23 and there was an estimate done, in fact, work did
24 commence to bring the units back up to a condition
25 where they could be utilized. It did involve work and

1 various items of equipment needed to be refurbished.
2 The work stipulated was just sufficient to make the
3 plant operable for four or five years, it was not to be
4 confused with the kind of work we talked about with the
5 Lakeview rehabilitation earlier. It wasn't that kind
6 of undertaking.

7 Q. Would it be stop-gapped for a short
8 duration to meet peak loads?

9 A. That was what was envisaged back last
10 year when we were going to bring the plant back, it was
11 for the next five years and the money committed was
12 sufficient to make the plant operate for roughly that
13 amount of time.

14 Q. That was a commitment of
15 approximately \$69-million, was that right?

16 A. Yes.

17 Q. So, there would have been retooling
18 of the two units?

19 A. What is retooling?

20 Q. Would the units have had to be worked
21 on and replaced, parts replaced, major parts?

22 A. Yes, there was work with the boiler
23 and turbine units, the water treatment plant was one
24 specific thing that needed work on, and the other
25 auxiliaries, pumps, fans, motors, a fair amount of work

1 in a number of different areas.

2 Q. And would scrubbers have been
3 installed?

4 A. No.

5 Q. Would any pollution control abatement
6 equipment be installed?

7 A. No additional. A large part of the
8 70-million -- \$69-million was, in fact, to remove
9 asbestos.

10 Q. That was about \$30-million, if I'm
11 not mistaken?

12 A. That's correct, that's correct.

13 Q. And that program proceeded in any
14 event did it?

15 A. We have continued with the work to
16 remove the asbestos from the station, yes, so the
17 30-million portion of the 70-million, the work is
18 continuing.

19 Q. That should be completed sometime
20 later this year, I understand; is that correct?

21 A. I'm not sure. I think that's
22 correct.

23 Q. Now, in answer to Interrogatory
24 2.20.13, that's found on page 5, Mr. Chairman, of
25 Exhibit 168, you note that the reactivation of the

1 Hearn station is not currently proposed, as you said,
2 two of the units were being considered last year,
3 that's not the case now?

4 A. That's correct. The decision to
5 restart Hearn was changed in September of last year.

6 Q. We will get into that in a little bit
7 more detail in a few minutes. Pardon me, I was looking
8 at the wrong page. In answer, you state that Hearn was
9 not included in the load meeting capability of the
10 existing system?

11 A. Yes.

12 Q. Mr. Starkman questioned you about
13 that issue and whether or not Hearn would be included
14 in future load meeting incapability. We have a
15 situation where last year you were looking at the Hearn
16 to possibly deal with parts of the peak load, now you
17 are not, it may, in fact, happen in the future again
18 that you will be considering the reactivation of some
19 or all of those units; isn't that correct?

20 A. Could I deal with it with respect to
21 the immediate future then perhaps one of my colleagues
22 can deal with how it's dealt with in the plant?

23 Q. What do you mean by immediate future
24 first of all?

25 A. We're always looking at next winter

1 and the next five winters after that, by "we" I mean
2 the operations division. It was the operations
3 division who had put forward the proposal to bring
4 Hearn back last year so it was more of a short-term
5 measure, the next five years shall we say.

6 Q. Yes.

7 A. So, it remains a possible option that
8 we will take account of when we are looking at the next
9 five years. I think this is separate from the
10 Demand/Supply Plan.

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1 [12:30 p.m.] Q. And beyond that five-year period?

2 A. Then it moves into the planning
3 horizon and I think it would essentially become part of
4 the Demand/Supply Plan.

5 Q. Mr. Snelson, could you help me?

6 MR. SNELSON: A. Yes. I think I told
7 Mr. Starkman this morning that the way Hearn and Keith
8 were considered in the Demand/Supply Plan is, they were
9 considered as options in case load was higher than
10 forecast. They were, therefore, included in the upper
11 load growth plan for a limited period of time.

12 They were not included in the median load
13 growth plan because of their low efficiency, high
14 operating cost, relatively high fuel cost, such that if
15 you wanted to use these facilities for extended periods
16 of time, for fairly high capacity factors or even in
17 some cases for low capacity factor use, you would
18 seriously consider building a new station to replace
19 them.

20 Q. That would entail an environmental
21 assessment under the Environmental Assessment Act; is
22 that correct?

23 A. That is part of what this process is.

24 Q. Separate, a site-specific
25 environmental assessment, aside from this planned EA?

1 A. I believe that with few exceptions,
2 any decisions to build a plant will require a
3 site-specific environmental assessment in addition to
4 whatever approvals are obtained here.

5 Q. And as Mr. Starkman elicited, we are
6 looking at a potential 2005 A.D. decommissioning date.
7 But that is not a finite date, as you stated, for the
8 reactivation of the Hearn; is that correct?

9 A. Yes. It's a notional date.

10 Q. Now, I understand that there are
11 several NUG proposals that are being considered for the
12 site; is that correct?

13 A. There is at least one. I am not
14 aware of more than one that is active at the moment.

15 Q. And that is being brought forward by
16 what company?

17 A. The NUG proposals will be discussed
18 in Panel 5 and there issue of confidentiality
19 surrounding specific NUG proposals from specific
20 proponents and so, I am not sure that it is appropriate
21 that I should answer that question.

22 Q. Are you telling me that because of
23 that potential issue of confidentiality, we may not
24 hear details of what is fully proposed for the Hearn
25 site, if NUG is one of those potential considerations?

1 A. If a NUG proposal for the Hearn
2 Generating Station site were to proceed, then I believe
3 that the non-utility generator would have to obtain
4 whatever approvals were necessary, including any
5 approvals that he might need underneath the
6 Environmental Protection Act or the Environmental
7 Assessment Act and--

8 Q. You are aware that -- I'm sorry.

9 A. --I am not expert to indicate what
10 specific approvals would be needed under those Acts.

11 Q. Perhaps Ms. Ryan could help us out
12 here. I am sure you are aware, Ms. Ryan, that if it is
13 a private company, that proposal would not necessarily
14 be designated under the Environmental Assessment Act
15 for for an environmental assessment, would it?

16 MS. RYAN: A. My understanding is that
17 they would have to get approvals under the
18 Environmental Protection Act.

19 I had thought that with some types of
20 NUGS, there might be requirements under the
21 Environmental Assessment Act, but I do not deal with
22 NUGS proposals and am not familiar with their
23 requirements under the law.

24 Q. Will we be hearing in detail, in the
25 NUG panel, as to what is proposed for the Hearn?

1 MR. SNELSON: A. I don't know what
2 degree of detail Panel 5 will be able to go into on
3 specific proposals.

4 Q. Do you have any details, in general
5 form, at least, as to what is being proposed for a NUG
6 utilization of the site?

7 A. In general terms, NUG proposals that
8 have occurred from over the last few years have
9 generally involved some combination of combined cycle
10 generation; that is, running on natural gas as a
11 primary fuel, and some of the proposals have involved
12 the extraction of heat from the generating units to be
13 sold to the district heating system in downtown
14 Toronto.

15 Q. Cogeneration type of proposals?

16 A. Cogeneration type of proposals, and
17 that this is the sort of high-efficiency use of energy
18 that the people from South Bruce were talking about a
19 couple of days ago.

20 Q. And what is the current proposal that
21 is on the table?

22 A. I don't think I should be discussing
23 the particulars of the current proposal and I am not
24 familiar with the details of the current proposal. The
25 witnesses from the Non-Utility Generation Division have

1 far more details about those proposals than I have.

2 Q. Are any other members of this panel
3 aware of any detail or any general detail?

4 MR. BARRIE: A. I am not.

5 MS. RYAN: A. I am not.

6 MR. TABOREK: A. Nothing to add.

7 Q. In formulating the DSP, you didn't
8 consider the use of the Hearn as a non-utility
9 generation system, did you?

10 MR. SNELSON: A. The use of Hearn was
11 identified as a potential site, as an illustrative site
12 in Chapter 14 of Exhibit 3, and it is shown as a - and
13 I am looking at page 14-37, figure 14-22, where Hearn
14 is shown as being a potential site for combustion
15 turbine units and a potential site for combined cycle
16 units.

17 Clearly, if the site is developed by a
18 non-utility generator, then that would tend to subtract
19 from its usefulness to Ontario Hydro specifically, but
20 in terms of electricity system, it can provide the same
21 benefit.

22 So, it really doesn't matter, to the
23 electricity system, whose name goes on the door.

24 Q. So, those two types of proposals that
25 are set out in figure 14-22 of Exhibit 3 are the types

1 of NUGS that are being considered at this time by Hydro
2 for that site; is that correct?

3 A. I have described the general
4 characteristics of NUG proposals that we have received
5 over the last four or five years. I don't think it is
6 appropriate to discuss the specifics of any current
7 proposals. As I said, I am not familiar with the
8 details of the specific current proposals.

9 THE CHAIRMAN: Perhaps you can help me to
10 this extent. At what point, speaking now generally;
11 not about the specific proposal, but speaking
12 generally, at what point would you build a NUG proposal
13 into the planning? At what stage of the negotiations
14 would it be; when there were serious negotiations, when
15 the deal had been made, or at what point would it
16 become part of your planning project?

17 MR. SNELSON: At the moment, the way NUGS
18 are being taken into account in our planning is that
19 each year, there is a non-utility generation plan being
20 prepared which is a forecast of how much non-utility
21 generation will be made available to us.

22 At present, that forecast largely is
23 based of cogeneration options and hydraulic, with a
24 little bit of waste fuel options.

25 That does not include a large non-utility

1 generator, such as the redevelopment at Hearn, so that
2 would probably be additional to what is in the current
3 plan.

4 THE CHAIRMAN: All right. I just really
5 wondered, at what point do you take such a proposal
6 into account in planning?

7 MR. SNELSON: When there is a relatively
8 high probability of it proceeding. If there was... We
9 haven't yet had the situation arise, but we will take
10 it into account when we see a significant probability
11 of it proceeding.

12 THE CHAIRMAN: Are you able to say
13 whether the proposal at Hearn that has been under
14 discussion the last few minutes has a high probability
15 of proceeding?

16 MR. SNELSON: I couldn't comment on the
17 probability at the moment because I am not familiar
18 with the current status of the NUG negotiations.

19 It hadn't reached the stage where we, in
20 planning, have recognized that it is a likelihood
21 rather than a possibility.

22 MS. PATTERSON: So, what does a high
23 probability of proceeding mean, in general terms? If
24 it was something that had to undergo an environmental
25 assessment, would it be at the stage where they had an

1 approval after a hearing or it had gone through the
2 Environmental Assessment Branch?

3 MR. SNELSON: I would expect that it
4 would start to figure as an explicit item in our plans
5 upon the exchange of some sort of letter of intent to
6 proceed, which I think would precede the obtaining of
7 environmental approval by the non-utility generator.

8 THE CHAIRMAN: Okay.

9 MR. H. POCH: Q. Will Hearn be dealt
10 with in more detail in the NUG panel?

11 MR. SNELSON: A. The witnesses on the
12 NUG panel will know more about the NUG proposals at
13 Hearn than I do, and as I have said, subject only to
14 the concern about confidentiality, and I don't know how
15 much that will limit the discussion.

16 Q. So, subject to the confidentiality
17 issue, it will be addressed in Panel 5?

18 A. Yes.

19 Q. The Hearn site comprises what, about
20 70 acres?

21 A. I don't know.

22 Q. Now, I would like to go back to the
23 reactivation issue.

24 And, Mr. Chairman, if we could turn to
25 pages 13 and 14 of Exhibit 168.

1 Now, panel, this is an information
2 release from Hydro's public information officer, and it
3 is dated March 15, 1990, and it refers to the
4 then-proposed reactivation of the two units at Hearn.

5 You have had an opportunity to review
6 this document, have you?

7 MR. BARRIE: A. Yes.

8 Q. At that time, Chairman Franklin said,
9 "...consumer demand for electricity is outpacing
10 Hydro's capacity to supply it."

11 I take it that he was just referring to
12 the peak load issue; is that correct?

13 A. Yes.

14 Q. And it says, following that,
15 "Restarting Hearn is the best of the alternatives..."

16 Did you consider other alternatives?

17 A. Yes.

18 Q. And what were those other
19 alternatives?

20 A. The principle alternative looked at
21 was making capacity purchases from our
22 interconnections.

23 Q. And which interconnections were you
24 looking at? New York?

25 A. It would more likely have been with

1 Michigan.

2 Q. What did you find when you looked at
3 that?

4 A. I think I should describe the total
5 process.

6 Q. Please.

7 A. In March of 1990, when this was
8 taking place, we would be looking the situation for the
9 following winter and the next five. We would be
10 assessing our capacity situation and our expected
11 demand for each winter peak.

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1 [12:45 p.m.] We envisaged, at that time, the load
2 forecast being what it is, that we would face potential
3 problems for the winters 1991/92 and on.

4 So, the option of purchasing is always
5 available to us when we have a capacity shortfall, as I
6 think I have described. We did go out and look at what
7 was likely to be available in the future winters ahead
8 of us, if we were in a position where we had to buy.

9 An assessment was done, and, in general,
10 it was felt that there would be some capacity available
11 but it was by no means certain. It was a cheaper
12 option than starting Hearn, but it was not as certain
13 to deliver the power, and it was really that element of
14 uncertainty that lead to the decision to restart the
15 Hearn.

16 By the way, at that time we envisaged not
17 only having to restart Hearn but possibly having to
18 make purchases as well. So, the plan was to use a
19 combination of both rather than rely entirely upon
20 capacity purchases.

21 Q. Were any contractual negotiations
22 entered upon with the other suppliers?

23 A. Discussions took place but no
24 contracts were struck, no.

25 Q. Could those negotiations have been

1 fruitful?

2 A. Yes.

3 Q. Is there still an opening to discuss
4 if, in the future, you do see the need to bring forward
5 some peak power from Hearn to go back to those other
6 suppliers and negotiate supply from those instead?

7 A. The process would be exactly the
8 same. Again, I suggest that we did foresee a capacity
9 shortfall, we would look at those options, exactly as
10 we did before.

11 Q. So, it would be more costly to
12 reactivate the Hearn than to buy from elsewhere.
13 That's what you said a minute ago; is that correct?

14 A. Yes.

15 Q. In costing that supply, those various
16 alternatives, did you include the environmental costs
17 of air pollution?

18 A. I don't think we did, no, of either
19 one.

20 MS. RYAN: A. But, I think it is fair to
21 say that the start of Hearn would have met the
22 requirements, environmental requirements.

23 Q. Under Regulation 308?

24 A. Yes.

25 Q. And elsewhere, there wasn't a study,

1 I take it, of the other suppliers' effect if you were
2 to be supplied by the other suppliers of any emissions
3 from their facilities?

4 MR. BARRIE: A. No, we would not have
5 assessed the impact of emissions in Michigan upon
6 Ontario.

7 Q. So, generally, and I guess as a
8 proposition, if you are looking at imports from other
9 jurisdictions, you don't consider the environmental
10 impact of the supply from the other jurisdictions; is
11 that correct?

12 THE CHAIRMAN: Impact on where, on
13 Ontario or on the location of the utility, offshore
14 utility?

15 MR. H. POCH: On both.

16 MR. BARRIE: Operationally we do not. I
17 am not sure if Ms. Ryan would like to add anything.

18 MS. RYAN: I think the point is that
19 those utilities have their own regulations to meet,
20 which they do. I think we have noted in past testimony
21 that, historically, there has been a difference between
22 our regulation and their's, and that there is a move
23 internationally to bring the regulations closer
24 together. So, that in future those types of
25 discrepancies should not occur.

1 MR. H. POCH: Q. Now, as we were
2 discussing earlier, \$69-million had been set aside to,
3 as was stated on page 13, to make the Hearn units fit
4 to run technically and environmentally. Now, is that
5 environmental consideration limited to the asbestos
6 removal program?

7 I am looking at the second last paragraph
8 on page 13 of Exhibit 168.

9 MS. RYAN: A. Asbestos removal is
10 generally not considered environmental; it's health and
11 safety. So, the environmental would refer to emissions
12 to meet the existing regulations.

13 Q. And what improvements would have been
14 incorporated to meet those environmental concerns?

15 MR. SNELSON: A. The proposal was to run
16 the plant on natural gas, which is a fuel for that
17 location, which would have relatively little in the way
18 of environmental emissions. There is no sulphur
19 dioxide appreciably with that fuel, and there are no
20 significant particulates with that fuel.

21 Q. How about the carbon dioxide, heavy
22 metals?

23 MS. RYAN: A. Carbon dioxide would exist
24 but be lower than coal, and heavy metals, to my
25 knowledge, I'm not aware of heavy metal emissions with

1 natural gas.

2 Q. Have there been scans, analyses, for
3 heavy metals?

4 A. We do not currently have a station
5 running on natural gas to test.

6 Q. Are you aware of tests in comparable
7 situations in other jurisdictions?

8 A. I'm not aware of specific data. I am
9 aware that testing is done.

10 MR. SNELSON: A. We don't know of
11 anything in the fuel that would generate heavy metals
12 in the exhausts.

13 MR. TABOREK: A. I might also note, Mr.
14 Poch, the plant would be for peaking purposes only and
15 would not run very much. And it is when it's used
16 continuously for energy purchases, not for capacity
17 purchases, that you tend to get significant emissions
18 of whatever is there.

19 Q. The proposal itself was to use that
20 plant to meet peak.

21 A. Mr. Barrie said approximately 5 per
22 cent capacity factor.

23 Q. That's right. So, there would have
24 just been the use of it from time to time?

25 A. Sporadic, yes.

1 Q. And if there is a reactivation in the
2 future, again we are looking at that same type of
3 scenario; is that correct, Mr. Barrie?

4 MR. BARRIE: A. I think so, yes.

5 Q. And will the City of Toronto be
6 notified in advance of any proposed reactivation?

7 A. I am not sure what the procedures are
8 of informing interested parties. I imagine they would
9 be, yes.

10 Q. Would anyone here undertake through
11 their office to inform the City's solicitor if a
12 reactivation is proposed?

13 THE CHAIRMAN: I don't think this is
14 really part of our concern.

15 MR. H. POCH: I will pass on that.

16 THE CHAIRMAN: If they want to say
17 that... I would be very surprised if you didn't know
18 about it, but I don't think that's part of our concern.

19 MR. H. POCH: I will pass on that line,
20 Mr. Chairman. I will leave that to another forum.

21 Q. Turning to page 117 of Exhibit 168,
22 which is a letter dated July 13, 1990, to the City of
23 Toronto clerk, Barbara Kaplin, from Chris Jones of the
24 design and construction branch, and it was copied to
25 the chairman of Ontario Hydro. This letter continues

1 to deal with the then-proposed reactivation of the two
2 units at Hearn; is that correct, Mr. Barrie?

3 MR. BARRIE: A. I'm sorry?

4 Q. Does this document again refer to the
5 continued then-proposed reactivation of the two units
6 at Hearn?

7 A. Yes, it does.

8 Q. And under the heading "Demand
9 Management" on the first page of the letter, in the
10 second paragraph, it says that:

11 "The generators are being restarted to
12 help meet the growing electricity needs
13 throughout Ontario and the greater
14 Toronto area created by population
15 increases and an expanding provincial
16 economy."

17 Do we still have those situations?

18 A. Could you ask the question again?

19 Q. Do we still have a population
20 increase in the greater Toronto area and an expanding
21 provincial economy at this time?

22 A. At this point in time we do not have
23 an expanding economy.

24 Q. And what it is meant by "expanding
25 provincial economy"? What parameters go into

1 determining?

2 A. Domestic product, I suppose.

3 Q. Pardon me? I'm sorry, I didn't hear
4 you.

5 A. An expanding economy is normally
6 measured by gross domestic product.

7 Q. Okay.

8 MR. SNELSON: A. This is getting towards
9 a discussion which is really a load forecast
10 discussion.

11 The expanding provincial economy in this
12 sense, its main impact on the operation of the power
13 system in general and Hearn in particular, is through
14 its affect on the load, and that's a load forecasting
15 issue.

16 Q. So, we were looking at GDP as a major
17 factor in implementing reactivation that was proposed
18 at that time. It was seen that the GDP would continue
19 to increase and there would need to meet the peak
20 power?

21 A. I think that the planning and
22 operations is driven by the forecast of load, that is,
23 at a given time. I believe that the load forecasters
24 would have told the panel that the GDP was one of the
25 factors that they use in coming up with the load

1 forecast. So, in planning and operations we deal with
2 the load forecast, the load forecasters evaluate the
3 affect of the provincial economy on the load.

4 Q. So, as late as a year ago,
5 approximately a year ago, in July, Ontario Hydro was
6 still thinking that there would be the need to meet
7 peak demand through the reactivation of the Hearn, and
8 that changed in September last year, or just prior to
9 September; is that correct?

10 MR. BARRIE: A. That's when the decision
11 on Hearn was made, in September.

12 Q. And who had input into the making of
13 that decision?

14 A. Well, the main impact was from the
15 load forecast. The load forecast changed and we, as
16 operators, reassessed the situation in light of the new
17 load forecast. We then recommended to the Board to
18 change the previous decision.

19 Q. The Board went along with that
20 decision?

21 A. They did.

22 Q. In mid-September?

23 A. Yes.

24 Q. Or early September.

25 So again, the reactivation and then its

1 deferral was driven for economic reason?

2 A. Driven by the need to meet the peak
3 demand. When the estimate of the peak demand was
4 reduced, then the need to restart Hearn was no longer
5 there.

6 It wasn't totally that, by the way. That
7 was the major driving force. There was a side issue as
8 well, that we were able to make some very attractive
9 arrangements to purchase some 200 megawatts from
10 Manitoba on an ongoing basis up to '93, which did
11 provide other assistance to meeting the projected
12 winter peak demands. But, the dominant factor was the
13 reduction in the load forecast.

14 Q. And that fine-tuning of the forecast
15 was for what, for the three-year period from September
16 of 1990?

17 A. No, I think it was a new load
18 forecast that was put in, it was several years, but it
19 was particularly impactitive to us in the next three
20 years.

21 Q. How often will this deferral of the
22 reactivation be reviewed?

23 A. Each year, round about March, we
24 assess the situation for the upcoming winters.

25 As I indicated to you earlier, the

1 restart of Hearn remains a possible option amongst a
2 number of options that we will consider where we see
3 potential shortfall.

4 MR. H. POCH: Mr. Chairman, I have one
5 further of line of questioning which will take me no
6 more than ten minutes.

7 THE CHAIRMAN: If you don't mind, I would
8 like to stick to our scheduling. So, we will stop and
9 come back at 2:30.

10 THE REGISTRAR: This hearing will adjourn
11 until 2:30.

12
13 ---Luncheon recess at 12:57 p.m.
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1 ---On resuming at 2:35 p.m.

2 THE REGISTRAR: This hearing is again in
3 session. Please be seated.

4 MR. CASTRILLI: Mr. Chairman, if you will
5 permit me to speak to you sitting down, I appear to be
6 about the fourth counsel down for those who are
7 expecting to cross-examine this afternoon, and I'm
8 advised by --

9 THE CHAIRMAN: I thought you were the
10 next, Consumers' Association?

11 MR. CASTRILLI: No, I'm not the
12 Consumers' Association, I'm Moose River/James Bay
13 Nan/Treaty #3 and Teme-Augama. I understand that Mr.
14 Poch will be approximately ten to fifteen minutes, the
15 Consumers' Association will be approximately a half
16 hour to an hour, Northumberland will be approximately
17 an hour and the Ontario Federation of Agriculture will
18 be will about a half hour which will take us to about
19 5:30.

20 THE CHAIRMAN: The Ontario Federation of
21 Agriculture is new, I didn't realize they were on the
22 list.

23 MR. CASTRILLI: I hadn't realized either,
24 I was just advised of that in the day. So, I would
25 like to ask the board's indulgence to permit me to

1 commence on Monday morning. And if for any reason the
2 next grouping were, in fact, reached this afternoon,
3 Ms. Marlatt is here and is ready to go and could go
4 ahead of me.

5 THE CHAIRMAN: Well, that's fine, then
6 we'll leave it that way.

7 MR. CASTRILLI: Thank you.

8 THE CHAIRMAN: More undertakings?

9 MRS. FORMUSA: What else? Two more,
10 142.17 and 142.61. Again, copies will be provided to
11 the counsel who received the undertakings, and to
12 anyone else who asked, and I have given eight copies to
13 Mr. Lucas.

14 THE CHAIRMAN: Thank you. Put one on
15 each of our desks if you could, Mr. Lucas.

16 MR. LUCAS: I'll do that.

17 MR. H. POCH: Thank you, Mr. Chairman.

18 Q. Ms. Ryan, I would like just to go
19 back to the proposed reactivation of the Hearn, or the
20 potential reactivation of the Hearn through the 1990s
21 and let's say up to the year 2005. Are there any air
22 shed air quality studies related to emissions from
23 Hearn proposed at this time as related to any
24 reactivation?

25 MS. RYAN: A. Not at this time. Should

1 there be a plan to reactivation then the appropriate
2 environmental studies will be done.

3 Q. Would that include an air shed
4 modelling exercise for the City of Toronto area? What
5 is appropriate in your mind?

6 A. It would be ensuring that the
7 environmental regulations of the day were met and at
8 this point in time air shed modelling is not included
9 as part of the Regulation 308.

10 Q. Now you mentioned the clean air
11 program?

12 A. Yes.

13 Q. Which is one of the predecessor
14 programs that could lead to the new Regulation 308 as
15 you're aware; is that correct?

16 A. That's correct.

17 Q. Would that contemplate an air shed
18 modell exercise also?

19 A. The clean air program as drafted
20 had -- I'm not familiar with the specifics of the
21 models but had air shed modelling. But at this point
22 in time it is still a draft regulation.

23 Q. So, you're not proposing to follow-up
24 on that?

25 A. Not at this time.

1 Q. I'd like to move to the last line of
2 questioning, Mr. Chairman, for this afternoon, and
3 Ms. Ryan, again, I'd like to turn to Hearn and in
4 particular combustion turbine units, CTUs as they're
5 colloquially known. They are mentioned throughout the
6 DSP document as a possibility for inclusion in several
7 generating station sites including Hearn; isn't that
8 correct, to meet peak demand?

9 A. Yes.

10 Q. So, they're part of the ultimate plan
11 proposal that's before this Board?

12 MR. SNELSON: A. Combustion turbine
13 units are part of the facilities we're seeking approval
14 of from this Board, but the sites that are identified
15 are illustrative sites and the combustion turbine units
16 if approved will be sited wherever is the most
17 appropriate in a subsequent siting process.

18 Q. Now, that subsequent siting process
19 was undertaken several years ago, wasn't it,
20 Mr. Snelson?

21 A. It was started about a year or so
22 ago.

23 Q. And that was an environmental
24 assessment process I understand, under the
25 Environmental Assessment Act; is that correct?

1 Ms. Ryan, perhaps you could help?

2 A. The exact legal status, I'm not sure
3 of, but it was an environmental assessment process.

4 Q. Would it have taken into account
5 those matters set out in section 5, subsection 3 of the
6 Environmental Assessment Act, Ms. Ryan?

7 MS. RYAN: A. I'm sorry, I don't know.

8 Q. Have you had any involvement in that
9 process, has anyone in your division had any
10 involvement in that process, dealing with the CTUs?

11 MR. SNELSON: A. There was extensive
12 involvement by environmental groups across the
13 corporation.

14 Q. I was asking specifically of Ms.
15 Ryan's division?

16 MS. RYAN: A. We were involved to the
17 extent we knew what the design group was doing. I
18 don't have any specific knowledge of that process.

19 Q. Are you aware that six candidate
20 sites were being processed for CTUs?

21 A. I was aware a number where, I don't
22 know the exact number.

23 Q. That's mentioned in the DSP document,
24 isn't it?

25 MR. SNELSON: A. I believe that the

1 sites that were identified for CTUs for consideration
2 in that process was a separate and subsequent process
3 to the DSP.

4 Q. Subsequent?

5 A. Yes.

6 Q. Now, of the six sites that were being
7 considered and Mr. Snelson I'll put it to you that it
8 was an ongoing, concurrent process that has been
9 deferred, and I'll get back to that in a minute, but
10 the six sites that were being considered, are you aware
11 of whether or not any of those are what is known as
12 greenfield sites, sites that are not being utilized at
13 this time?

14 THE CHAIRMAN: Did you say greenfield?

15 MR. H. POCH: Greenfield.

16 Q. Perhaps I can help you. If we can
17 refer to page 21 of Exhibit 168 and the second last
18 paragraph on that page.

19 Mr. Chairman, this is the second page of
20 an information release from Ontario Hydro dated
21 September 25, 1990 dealing with the deferral of the
22 restart of Hearn and the siting of CTUs.

23 The second last paragraph, Mr. Snelson,
24 speaks to Hearn being one of six existing generating
25 station sites in southern Ontario being considered.

1 MR. SNELSON: A. Yes.

2 Q. And then it goes on to say
3 "Environmental studies for these sites will continue."

4 Are those studies still continuing?

5 A. Not at this time.

6 Q. Do you know why, or does anybody on
7 this panel know why they're not continuing?

8 A. This process of selecting combustion
9 turbine sites was discontinued because the need for
10 them in the next few years, there seemed to be a much
11 lower probability because of the decline in load
12 forecast for the short term.

13 Q. Essentially, the same reason why the
14 reactivation of Hearn didn't proceed; is that correct?

15 A. That's correct.

16 Q. If there is a further study of these
17 candidate sites for CTUs, do you know if any other
18 sites, that may not be owned by Hydro, will be
19 considered?

20 A. In selecting the sites to be
21 considered one of the factors that's taken into account
22 -- we'll come back to your question, first of all, no I
23 don't know for sure whether other sites will be
24 considered. I do expect that existing sites would be
25 high priority sites.

1 Q. Are you aware how long this CTU
2 proposal has been deferred, what length of time?

3 A. I don't believe there has been a
4 specific time period put on when it will be restarted.
5 It's indefinitely deferred, but it could be restarted
6 at any time if the need was foreseen.

7 Q. At Hearn it is a large site, I take
8 it, open space on site; is that correct?

9 A. I think, was 70 acres that was
10 mentioned this morning?

11 Q. Yes.

12 A. That's the size, whether that's large
13 or small you can judge.

14 Q. For the City of Toronto, that's a
15 fairly large acreage. Are you aware if there is room
16 to store coal on site?

17 A. At the present there is room to store
18 coal, yes.

19 Q. Is there any opportunity to turn
20 Hearn into a coal gasification plant; is that being
21 considered?

22 A. Their have been at least preliminary
23 considerations of coal gas indication at Hearn.

24 Q. And are you aware or is anybody else
25 on this panel aware of any experience in the use of

1 gasified coal as a fuel source for CTUs or for
2 generation anywhere?

3 A. There is the cool water plant in the
4 United States which gasifies coal and has an integrated
5 gasification combined cycle.

6 There are a number of other facilities
7 elsewhere either proposed or under construction. I
8 believe there is a 200 megawatt facility being
9 committed in Holland, if I remember right.

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25 ...

1 [2:45 p.m.] Q. That is not a proposal for the Hearn
2 Generating Station, is it? It has not been considered,
3 at all, has it?

4 A. I don't believe the Hearn was
5 identified as an illustrative site for IGCC plant in
6 the Demand/Supply Plan.

7 MR. H. POCH: Mr. Chairman, those are my
8 questions.

9 THE CHAIRMAN: Thank you, Mr. Poch.

10 MR. TABOREK: Mr. Chairman, I would like
11 to correct a number I gave earlier to Mr. Poch.

12 THE CHAIRMAN: Yes. Would you do that,
13 please?

14 MR. TABOREK: Mr. Poch asked me for the
15 price of a pair of scrubbers for Lambton. I gave him
16 457-million. That's an old number. The correct number
17 where is 537-million.

18 THE CHAIRMAN: 137?

19 MR. TABOREK: 537.

20 MR. H. POCH: Q. You said "Lambton." I
21 was asking about Lakeview.

22 MR. TABOREK: A. And then you asked me
23 to make an estimate of Lakeview, and so I did a
24 factoring and said roughly 400. The same factoring, I
25 would now say roughly 500.

1 DR. CONNELL: That was for two?

2 MR. TABOREK: Two.

3 THE CHAIRMAN: For two scrubbers?

4 MR. TABOREK: Yes, sir.

5 THE CHAIRMAN: Two units?

6 MR. TABOREK: Yes.

7 DR. CONNELL: Do you have a figure of 169
8 for a scrubber?

9 MR. TABOREK: Sir, there are actually
10 quite a number of figures that can come out, depending
11 on whether they have interest, whether they are in
12 dollars of some particular year, whether they are in
13 dollars of the year, and at various stages in the
14 process. So, they do tend to vary quite a bit.

15 DR. CONNELL: So, this is an all-in
16 figure, I take it?

17 MR. TABOREK: This is actually what you
18 sign on the cheques.

19 THE CHAIRMAN: If you were buying it
20 today?

21 MR. TABOREK: This is for the first two
22 scrubbers at Lambton, yes.

23 MR. SNELSON: For 1994 in-service.

24 MR. TABOREK: For 1994 in-service and
25 dollars of the year, including interest.

1 THE CHAIRMAN: But just so I am clear,
2 this is a committed figure? It is not an estimated
3 figure?

4 MR. TABOREK: Yes. This is a committed
5 figure, yes.

6 THE CHAIRMAN: But the other figure, the
7 one for Lakeview, is an estimated figure based on what
8 it is costing?

9 MR. TABOREK: Given these and allowing
10 for the difference in size and some allowance for the
11 extra difficulty, it's just a rough judgment I have
12 given.

13 MR. SNELSON: We should caution you that
14 there are considerable practical difficulties of
15 installing and operating scrubbers at Lakeview,
16 including a shortage of space to store limestone, a
17 shortage of space to store ash that already exists, and
18 a shortage of space to store any wastes that might be
19 created by the scrubbing process. So, Lakeview is a
20 very difficult site to add scrubbers to, and the route
21 that we have been proposing to go with Lakeview is
22 towards the lower sulphur fuel route.

23 THE CHAIRMAN: Do you have questions you
24 want to ask as a result of this?

25 MR. H. POCH: No, sir.

1 THE CHAIRMAN: Okay.

2 MR. MONGER: Good afternoon. These
3 questions I think will be mainly for Mr. Taborek. They
4 all arise out of his evidence in chief at pages 2736
5 through 2738, of his examination in chief. That is in
6 Volume 16 of the transcript. These questions relate to
7 his comments on the implications of the daily
8 chronological load curves.

9 If you could turn up page 10 of Exhibit
10 136, that would be appreciated, as well, and possibly
11 if you could put it up on the overhead.

12 THE CHAIRMAN: 136?

13 MR. MONGER: 136, yes.

14 CROSS-EXAMINATION BY MR. MONGER:

15 Q. I believe you indicated that these
16 graphs represent the daily chronological load curves of
17 two hypothetical utilities. As you can see, the upper
18 one has the high load factor and the lower one has the
19 low load factor.

20 Such a graph of Ontario Hydro's daily
21 chronological load is much more like the upper graph;
22 isn't that correct?

23 MR. TABOREK: A. Yes.

24 Q. And so, it had a high load factor and
25 a relatively flat shape?

1 A. Yes.

2 Q. And that can be seen by looking at
3 page 7 of the same exhibit, I believe.

4 A. Yes.

5 Q. Okay. You would just draw the line
6 along the top of those numbers?

7 A. (Nodding head)

8 Q. Okay. You indicated on May 21st,
9 that the area under these curves represents the energy.
10 I take it that would be the energy demand placed upon
11 the system by the respective utility's customers?

12 A. Yes.

13 Q. And you suggested that this energy
14 figure influences fuel use emissions and controls.
15 Could you, please, elaborate on nature of this
16 influence? You touched briefly upon it on May 21st.

17 A. Could you just lead me a little
18 further because I spoke at some length, and the
19 influence on fuel use?

20 Q. All right. The energy--

21 A. Yes?

22 Q. --how it influences fuel use and
23 emissions, particularly.

24 A. Well, first of all, for the same peak
25 load to be met, the high load factor utility would have

1 to provide more energy and use more energy, burn more
2 fuel, than the low load factor utility for the same
3 peak load; that is, the area under this curve is
4 greater than the area under this curve, the amount of
5 energy.

6 Q. All right, okay. I think that
7 that -- sorry. Go ahead if you have more to say.

8 A. No. If that is satisfactory, that is
9 fine.

10 Q. How would that affect controls? How
11 would that influence controls?

12 A. It is easiest to see. It depends, of
13 course, on what fuel you are using or power source, but
14 if you just consider it is all provided with coal, this
15 would use more coal than this utility.

16 The utility with the high load factor, if
17 it were using all coal to provide, it would be burning
18 more coal than the utility with the low load factor.

19 Q. I understand that.

20 A. And so, the point I was making was
21 emissions are proportional to the energy used.

22 Q. So, I understand how it would affect
23 emissions, but I think you said it would influence
24 controls, as well?

25 A. Oh. And I then went on, since

1 regulations -- regulations can be written in many ways,
2 but our regulation, for instance, is a constant tonnage
3 per year and if we have to produce more energy or burn
4 more coal, we have to add more emission controls.

5 Q. Okay. Thank you. To get specific
6 then, if we turn to page 7 or graph 7, and looking at
7 this graph of the daily chronological load curve or a
8 typical daily chronological load curve, I take it, of
9 the existing system--

10 A. Yes.

11 Q. --can you, please, indicate where on
12 the graph a reduction in hourly demand of, say, 5 per
13 cent and thus a reduction in energy would lead to a
14 reduction in fuel use and lower emissions? Would it be
15 everywhere on the graph?

16 A. Everywhere, yes.

17 Q. Okay.

18 A. Depending on the hour in which it
19 actually occurred. So, hypothetically, if it occurred
20 at eight o'clock in the morning, it would be there, but
21 if it occurred in more hours, it would be there.

22 Q. Okay. And this is just to get it
23 very clear on the record. A reduction in the energy
24 requirement should lower the fuel use and emissions
25 even if such reduction does not affect peak load?

1 A. Yes.

2 Q. Sorry, could you go back to page 10?

3 If we assume for a moment that the two hypothetical
4 utilities have the same load-meeting generation
5 facilities as Ontario Hydro, and that their system
6 peaks are identical to Ontario Hydro, would it be
7 correct to say that the high load factor utility would
8 use its fossil generation facilities far more than the
9 low factor utility?

10 A. Yes.

11 Q. And thus, the low load factor at peak
12 of utility would have substantially lower fuel use and
13 emissions?

14 A. Okay. If it had exactly the same
15 generation as Ontario Hydro. I guess I was going to
16 qualify that frequently, utilities do not have the same
17 generation as we do. Many utilities have coal base
18 load, but --

19 THE CHAIRMAN: In the context of what you
20 are saying, what do you mean by "generation"?

21 MR. TABOREK: The generation you would
22 use to meet this demand.

23 THE CHAIRMAN: You mean the amount of
24 production of power?

25 MR. TABOREK: Yes. The actual units you

1 would schedule to meet it.

2 THE CHAIRMAN: All right.

3 MR. MONGER: Mr. Chairman, I am asking
4 about -- I am assuming that the two utilities have
5 identical mixes of generation facilities.

6 MR. TABOREK: Yes. You are correct.

7 MR. MONGER: Q. Okay. Just to make sure
8 what I am correct on, the low load factor peaking
9 utility would have substantially lower fuel use and
10 emissions than the high load factor?

11 MR. TABOREK: A. For the identical
12 generation mix, yes.

13 Q. Okay. Thank you. Could you, please,
14 now turn to page 2738 of Volume 16 of the transcript.

15 Again, to clarify for the record, looking
16 at the third paragraph down, could you please clarify
17 which hypothetical utility of the two on page 10 of
18 Exhibit 136 would, in your opinion, find more
19 opportunities for demand management?

20 A. Lines 15 to 17. The low load factor
21 utility will generally find more in the way of
22 opportunities for demand management than the high load
23 factor utility will.

24 Q. Okay. Could you please explain that
25 answer?

1 A. The low load factor utility is
2 looking for demand management opportunities that are
3 effective over a few hours.

4 The high load factor utility is looking
5 for demand management opportunities that are effective
6 over a longer period of time, or alternatively, it has
7 to bunch short duration utilities to make them
8 equivalent. Short duration opportunities to make them
9 equivalent to a long duration opportunity.

10 Q. I may be reading too much into this,
11 but do you see the sole purpose of demand management,
12 then, as being the reduction of peak, of lowering
13 capacity requirements?

14 A. I guess from the point of view of the
15 utility planner and testifying about the impact of
16 demand management on utility plans, that is one
17 important factor. What other areas would you --

18 Q. Well, would you say it is the most
19 important factor? Okay. Would you agree that another
20 important purpose of demand management would be the
21 reduction of the energy demand placed on the system,
22 regardless of where that reduction occurred relative to
23 peak?

24 A. Okay. I guess I would go back.

25 Yes, it is an attempt. What demand

1 management is for; it is one option to bring demand and
2 supply into balance in a least-cost fashion and in an
3 environmentally acceptable fashion, so it serves a
4 number of purposes, including that.

...

1 [3:00 p.m.] Q. Now, that you understand what you may
2 be balancing off, would you say that the primary
3 purpose of demand management, though, is to reduce
4 peak?

5 A. It's to reduce both peak and energy.
6 It has benefits in both.

7 Q. So, would you agree, then, that a
8 program, a demand management measure that could reduce
9 the energy requirement in a manner that would be
10 effective for less than 16 hours, ignoring bunching for
11 the moment, could have an effect of producing the
12 energy?

13 A. Yes.

14 Q. And that such a demand reduction
15 program that reduced the area under the curve, that did
16 not affect peak in any way, could be valuable because
17 it would reduce fuel consumption?

18 A. Yes. And in particular, the general
19 thrust is that whatever benefits demand management, or
20 indeed any option, bring to the system, should be fully
21 recognized and that those benefits can take different
22 forms. And so, for instance, this takes you into the
23 area of avoided costs and giving the appropriate
24 credits for the characteristics of the option, yes.

25 Q. And would it also be valuable because

1 it reduces emissions, if it only affected energy and
2 not peak?

3 A. Yes, indeed. Any option-reducing
4 emission should receive credits for that.

5 Q. Okay. Now, going back to our
6 hypotheticals, I guess. Assuming peak is not affected,
7 and assuming that we are not talking about a load
8 shifting type of demand management, can you think of
9 any other beneficial results flowing -- sorry, let me
10 back up a moment.

11 Assuming that peak is not affected - I
12 can make this more simple - can you suggest any
13 beneficial results flowing from a reduction in the
14 energy of the system it is required to produce? So,
15 peak is not affected, the only affect is reduction in
16 energy. Can you think of any other benefits other than
17 reduced emissions and lower fuel use?

18 A. Those, I think, is the major ones.

19 MR. SNELSON: A. If you burn less fuel
20 you will have less ash, so you will less problems with
21 ash disposal.

22 MR. TABOREK: A. It's a measure that is
23 very popular with the general public. So, it would be
24 well received publicly.

25 Q. Okay. Would you agree that a

1 reduction in the energy requirement that does not
2 affect peak would have the effect of diminishing the
3 load factor on the system?

4 A. Yes.

5 Q. And I believe you testified yesterday
6 that a lower load factor might allow for a lower
7 reliability margin.

8 A. Yes.

9 Q. Okay. And that would also possibly
10 be perceived as a benefit?

11 A. Yes.

12 THE CHAIRMAN: I'm sorry. Maybe I have
13 got my mathematics turned around. Why would it be a
14 lower load factor, if peak remains the same and overall
15 energy is reduced?

16 MR. TABOREK: We had used the argument
17 inversely before, that the consequences of having a
18 problem with a very peaky utility is that the problem
19 persists for a shorter period of time than if you have
20 the same magnitude problem with a high load factor
21 utility. So, I think we used the phrase, the steepness
22 of the cliff, if you will, is less severe, the
23 consequences of a problem are less severe.

24 THE CHAIRMAN: That's the reliability we
25 are talking about. I thought you said load factor and

1 load factor, the peak being constant and the amount of
2 energy going down -- maybe I have my mathematics wrong.

3 MR. TABOREK: Yes, the load factor goes
4 down.

5 MR. BARRIE: The load factor is simply
6 the energy - that's the area under the curve - divided
7 by what would have been supplied had the peak been
8 supplied throughout. So, if you reduce the energy and
9 leave the peak as it is, then clearly the load factor
10 goes down.

11 THE CHAIRMAN: All right.

12 MR. MONGER: Q. To go back once again.
13 The reference is to page 4259 of the transcript from
14 yesterday, for the last question, it is where it was
15 put on the record that reducing the load factor could
16 reduce the reliability margin.

17 Do you have any examples of demand
18 management measures other than short-term load shifting
19 measures that would be available to the low load factor
20 utility which would not reduce the energy demand to the
21 high load factor utility?

22 MR. TABOREK: A. Could you say that
23 again, please.

24 Q. Okay. Ignoring load shifting type
25 demand management, can you think of any measures that a

1 utility could take, the low load factor utility could
2 take that would not also reduce the energy use of the
3 high load factor utility?

4 MR. SNELSON: A. I think the problem we
5 are having with your question is that you are asking
6 the question about two hypothetical utilities, and
7 apart from the shape of the load curve, we haven't
8 defined anything about these hypothetical utilities.
9 So, we have no basis whatsoever to say what load
10 management opportunities would be available to one and
11 not the other because we have no information about the
12 actual make up of their loads.

13 Q. With respect, Mr. Taborek is on the
14 record as using the same hypothetical utilities, saying
15 that the lower load factor utility would have more in
16 the way of opportunities for demand management than the
17 high load factor utility would, and I am just asking
18 him to expand upon that, give me some examples of the
19 greater numbers.

20 A. But you did say the ones that would
21 not affect peak.

22 Q. No, no, we have gone past that now.
23 Sorry if I have mislead you on that.

24 I am talking now about ones that are not
25 reliant on load shifting as --

1 MR. TABOREK: A. But there is an energy
2 component, too.

3 Q. There is an energy component.

4 MR. SNELSON: A. I can give you an
5 example, and that is that quite a number of utilities
6 in the United States experience short duration peaks
7 due to air conditioning, and they have programs to
8 encourage customers to take essentially an
9 interruptible supply to their air conditioning load,
10 and they are able to disconnect that air conditioning
11 load for a short period of time. During that time, the
12 customers are prepared to tolerate the fact that their
13 house might be getting slightly warmer. But if the
14 interruptions were to be sustained for a long period of
15 time, then that wouldn't be the case. There are
16 similar opportunities with water heating as well.

17 Q. Leaving the practicality of that
18 option aside for the moment for the high load factor
19 utility, you would agree with me that if such a program
20 was utilized by the high load factor utility, it would
21 also decrease the energy for that utility?

22 A. Yes. And I think Mr. Taborek's point
23 he was making was that if you have an opportunity such
24 as, say, interrupting water heaters, that water heaters
25 can only be off for two hours, say, before the customer

1 runs out of hot water and needs to have it back on
2 again, if you have a 2-hour peak, that is fully
3 effective in reducing the peak, and it also reduces
4 energy.

5 For the high load factor utility to make
6 the same reduction in peak, they would need at least
7 four, say they are going to have an 8-hour peak, they
8 would need at least four of such options to be used
9 consecutively. And, in fact, they don't actually
10 achieve that benefit because of certain flyback
11 provisions. But they will need at least four such
12 programs to have the same effect.

13 Now, it would also reduce energy, but it
14 would be less attractive because the peak reduction
15 would not be as large.

16 Q. I understand that. I guess what this
17 leads me to, then, is the question, really both
18 utilities probably have the same opportunities for
19 demand management, one will only affect energy
20 possibly, and one will affect peak as well, or be more
21 effective on peak? Do you understand what I am saying?

22 A. Yes. I think that the same
23 opportunities would have the same effect on energy for
24 both systems and would have a bigger effect on peak for
25 the low load factor utility than for the high load

1 factor utility.

2 Q. I believe, Mr. Taborek, has agreed
3 that there is a value to reducing energy.

4 A. Most certainly, yes.

5 MR. TABOREK: A. Yes.

6 Q. At page 2737 of Volume 16, in
7 response to the question: "Is a high load factor
8 preferred over a low load factor?" Mr. Taborek
9 responded in the negative, and went on to say:

10 "Any utility with any kind of load
11 factor will work to flatten it out.

12 That's because it allows for the greatest
13 utilization of the resources the utility
14 has."

15 Would you agree with me that flattening
16 the load curve will create a higher load factor by
17 definition?

18 A. Yes.

19 Q. And does that not suggest that from
20 the utility's perspective, a high load load factor is
21 preferred, in fact?

22 A. It's a case of given your equipment,
23 you worked to make the best use of your equipment, your
24 generation.

25 I don't think you can go on and say if

1 you were designing and adding to a system, that there
2 is any preference one way or the other.

3 We had debated how far one could go with
4 that and I don't think you can give a blanket assurance
5 one way or the other.

6 Q. But within an existing system, would
7 you say that a high load factor is preferred?

8 A. Yes.

9 Q. Okay. Now, can we take from this, in
10 your opinion, will a utility work to increase off-peak
11 load if the effect of such an increase is to flatten
12 out the curve?

13 Now, I am not talking here about load
14 shifting again. If you are stuck with your peak, for
15 the moment, would a utility try and increase its
16 off-peak load to flatten the curve?

17 MR. SNELSON: A. Traditionally, quite a
18 lot of utilities have moved in that direction, provided
19 the revenue they were going to get from increased
20 off-peak sales exceeded their costs of making those
21 sales.

22 Q. Was Hydro one of those utilities?

23 A. I believe that in the past we have
24 had special rates for such loads. I don't think they
25 exist today.

1 Q. But you believe in the past Hydro
2 would actively promote an increase in energy?

3 A. I believe that in the past, Ontario
4 Hydro had a special rate for customers who would use
5 energy in off-peak hours and in only off-peak hours.
6 To some extent, the current time-of-use rates has some
7 element of that in that the rates at night-time are
8 lower than during the daytime.

9 Q. Now, assuming the same peak, which I
10 take it, in the example of Hydro in the past, would
11 apply, why is a flat load curve more desirable than a
12 peaky one, if the peaky one produces fewer emissions
13 and requires less fuel and could lead to a lower
14 reserve margin?

15 MR. TABOREK: A. Well, the comment about
16 producing more emissions presumes that emission
17 controls appropriate to the regulation or to maintain
18 in a constant level aren't fitted.

19 In the case of Hydro and in the case of
20 certainly the SO(2) emissions, and others of our
21 emissions, we have to essentially maintain the same
22 amount. So, when you look at the cost of meeting
23 off-peak load, the cost of meeting all the obligations
24 that you have, have to be taken into account.

25 Q. I'm sorry, can you explain how that

1 last part, how the costs must be taken into account?

2 A. Let's say Mr. Snelson mentioned that
3 in looking to fill off-peak or to sell additional
4 electricity off-peak, you judged whether the costs in
5 the revenues were appropriate. You made the point that
6 it would add, say, if it came from coal, it would add
7 emissions. I said that with Hydro's regulations,
8 certainly SO(2) and others, if we produced additional
9 emissions from coal, we have a fixed tonnage limit, we
10 would have to introduce additional controls. So that
11 the costs that were taken into account against the
12 revenues would have to include emission control costs.

13 Q. Okay. Maybe you have already
14 answered this. Why would Hydro work to have the
15 greatest utilization of the resources the utility has
16 if this leads to an increased emissions, fuel use and a
17 higher reserve margin?

18 A. Because the revenues gained would be
19 more than the cost. And because people have a need
20 that can be meet.

21 MR. SNELSON: A. There is a point here,
22 and that is that while off-peak rates in the past had
23 this specific objective of increasing off-peak loads,
24 that isn't today's objective of Ontario Hydro.

25 The objective behind our time-of-use

1 rates at the moment is to have the costs we charge our
2 customers more closely reflect how the cost varies
3 through the day and to provide incentives to use less
4 electricity during peak times, and also to provide
5 incentives for customers to shift some of their use
6 from peak times to from off-peak times.

7 So, Ontario Hydro is not, at the moment,
8 actively seeking new load. Ontario Hydro's time-of-use
9 rates have the purposes I have enumerated.

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1 [3:19 p.m.] Q. Would you say Ontario Hydro, at the
2 moment, is actively seeking to reduce energy?

3 A. Ontario Hydro through it's demand
4 management program is seeking to reduce energy and
5 peak requirements.

6 Q. In Ontario Hydro's specific case, can
7 you tell me how the desire for a flat curve affects the
8 uptake of demand management programs that could create
9 a more peaky curve without actually affecting peak?

10 A. Demand management programs are
11 attempting to reduce both peak and energy. In
12 calculating the avoided costs -- and we will come to
13 avoided costs on Panel 3 in principle and Panel 4 in
14 the details as they affect demand management programs.
15 But, in calculating avoided cost we give credit for
16 peak and energy savings as appropriate.

17 So, an option that has energy savings but
18 no peak savings will get credit for its energy savings,
19 but it won't get credit for peak savings.

20 Q. Okay. Would you agree with the
21 statement that the decision that a flat load curve is
22 desirable leads Ontario Hydro to reject the demand
23 management options and that would leave peak unaffected
24 but would reduce the energy demand on the system?

25 MR. TABOREK: A. No, I don't think we

1 made that statement.

2 Q. No, I didn't say you made that, I
3 asked if you agreed with it.

4 MR. SNELSON: A. I'm not sure that we
5 fully accept that a flat load curve is desirable. A
6 flat load curve has the advantage of producing more
7 energy from a certain amount of capacity, but I think
8 that you have to carefully consider all of the
9 advantages and disadvantages.

10 Q. So, you don't agree then with the
11 statement that - I'm sorry, I want to find it exactly
12 - any utility with any kind of load factor will work to
13 flatten it out?

14 That's the statement you are not agreeing
15 with now?

16 A. I believe Mr. Taborek later in his
17 evidence said that utilities were designed in the
18 system that you can't really clearly say whether the
19 flat load curves are desirable, or not, and the
20 utilities were design their system to meet whatever
21 load curve they have.

22 MR. TABOREK: A. The question is, is a
23 high load factor preferred over a low load factor? No,
24 not really. And then some observations.

25 Q. You have just said that a utility

1 will work to meet the load curve it has, you will also
2 attempt to manipulate the curve, I take it?

3 MR. SNELSON: A. That is correct,
4 through demand management you will attempt to
5 manipulate load curve.

6 MR. MONGER: Those are my questions then,
7 thank you.

8 THE CHAIRMAN: Thank you, Mr. Monger.
9 Northumberland Environmental Protection.

10 If you don't mind, we will take the
11 afternoon break and we won't have to break in the
12 middle of your presentation.

13 THE REGISTRAR: We will recess for
14 fifteen minutes.

15 ---Recess at 3:30 p.m.

16 ---On resuming at 3:45 p.m.

17 THE REGISTRAR: This hearing is again in
18 session. Be seated, please.

19 THE CHAIRMAN: Northumberland, Mrs.
20 DeQuehen.

21 CROSS-EXAMINATION BY MRS. DEQUEHEN:

22 Q. Good afternoon, I'm Ella DeQuehen
23 from Norththumberland Environmental Protection and
24 questions relate to Volume 6 --

25 THE CHAIRMAN: That's Exhibit 6, is it?

1 MRS. DEQUEHEN: No, Volume 6 of the
2 transcripts of Panel 2.

3 MS. PATTERSON: Volume 16?

4 MRS. DEQUEHEN: Volume 16, I beg your
5 pardon. They relate to a very few pages, 2758 to 2761,
6 and they are in relation to public radiation
7 protection. They are not in direct response to the
8 text but we feel we must respond because of the fact
9 that these pages present radiation protection in the
10 very best light, without actually substantiating these
11 claims.

12 We feel that the only way to deal with
13 this is to thoroughly analyze the subject. If we let
14 it pass it will be the same as acknowledging what has
15 been said here and we feel that statements are
16 presented as simple propositions without difficulties
17 whereas, in fact, they are fraught with difficulties,
18 uncertainties, assumptions and we feel that the only
19 way to tackle it is to go through the various terms and
20 methodologies that are involved in order to present it
21 in a truer light --

22 THE CHAIRMAN: Just so we understand each
23 other, this is not the time in which you make a
24 response in the way of putting forward your own case,
25 that happens later. What you are here to do now and

1 which you are free to do is ask these witnesses any
2 questions to elicit from them their answer.

3 So, an example for the statements that
4 Ms. Ryan made about radioactive emissions you are
5 entitled to ask her questions about it and get her
6 answers.

7 What you can't do is at this stage is get
8 into an argument with her about it. In a sense, you
9 can examine her thoroughly and point out any
10 inconsistencies, or ask her to explain, or various
11 things like that you are allowed to do and that is what
12 we do now, but when it comes to the point when
13 Northumberland wants to put its position forward about
14 these things, that is done along with all the others.
15 Do you follow me?

16 MRS. DEQUEHEN: Yes.

17 THE CHAIRMAN: So, what you should be
18 doing now is asking questions of the panel.

19 MRS. DEQUEHEN: I'm going to ask
20 questions but some of the questions are just not
21 directly related to these, they are questions --

22 THE CHAIRMAN: You ask the questions and
23 they will either be answered or they will say they
24 can't answer it, or Mrs. Formusa may say it's not a
25 question you should be asking, but I think the best way

1 you should do is just ask the questions.

2 MRS. DEQUEHEN: Perhaps I could just hand
3 out these references to the questions I intend to ask.

4 THE CHAIRMAN: Certainly. Does the
5 panel have copies of these?

6 MRS. FORMUSA: They just received one
7 now.

8 MRS. DEQUEHEN: Q. I will be asking
9 questions of Ms. Ryan. I wonder if you could turn to
10 reference one.

11 MS. RYAN: A. Yes.

12 MRS. DEQUEHEN: Q. Page 209.

13 THE CHAIRMAN: Where is this from,
14 please? 209 where did it come from?

15 MRS. DEQUEHEN: This is reference one.
16 It is from World Energy Conference Report. It's on the
17 cover, and it is Ontario Hydro's Exhibit A28, it's on
18 the cover of reference one.

19 MS. RYAN: What does the reference
20 Ontario Hydro Exhibit A28 mean?

21 MRS. FORMUSA: It's been given an Exhibit
22 number, I suspect.

23 MS. RYAN: Oh, okay.

24 MRS. DEQUEHEN: It was one that was in
25 the library and that was under that Exhibit number.

1 MRS. FORMUSA: It's Exhibit 55.

2 THE CHAIRMAN: Exhibit 55, thank you.

3 MRS. DEQUEHEN: Q. Page 209, paragraph
4 one, two, three, four, five, it says "Limit in West
5 Germany 0.3 millisieverts..." -- it's just the last
6 sentence. "It is not a health protection limit." I
7 wonder if you could explain to me what is meant by,
8 "This is not a health protection limit"?

9 MS. RYAN: A. I think I need to point
10 out to you that this is the first that I have seen this
11 document and my position on this panel is to provide an
12 overview of Ontario Hydro's environmental performance
13 with respect to the existing system and nuclear plant
14 is one of the parts of that system. So my evidence and
15 my expertise is to do with how our plant has met
16 existing continuing regulations.

17 A. I would feel that this type of
18 discussion would be better served by Panel 9.

19 THE CHAIRMAN: Having said that, within
20 that limitation, do you have any understanding of what
21 "health protection limit" means?

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...

1 [3:50 p.m.]. MRS. DEQUEHEN: Well, if --

2 THE CHAIRMAN: No, no. Please. If you
3 don't, say so.

4 MS. RYAN: In this context, no, I do not.

5 MRS. DEQUEHEN: May I?

6 THE CHAIRMAN: Yes. Yes, now.

7 MRS. DEQUEHEN: Q. Well, I would think
8 there would be choices. Either it is above a health
9 protection limit in stricture. It is stricter than
10 health protection limit or it is below, it is less
11 strict than a health protection limit. I mean, where
12 does it come in relation to health protection limit?

13 MS. RYAN: A. I assume that what this
14 means is that it is a regulatory dose limit, so it is
15 taking into account a calculation similar to what we go
16 through, based on an acceptable or a regulated dose
17 limit, what is an acceptable emission limit from the
18 station and so that it is designed to be geared
19 directly to the operation of a given facility. It is
20 not making any comment on the overall protection of
21 health. It is a regulated dose limit.

22 Q. And you wouldn't be able to draw a
23 conclusion, whether a health protection limit should be
24 higher or lower than that for a nuclear generating
25 station? Very well. I will withdraw the question.

1 Would you be able to define for me what a
2 health protection standard involves?

3 A. Are you looking for a definition in
4 words or a --

5 Q. No, no. I am looking for a
6 definition in words, absolutely, yes; not
7 quantitatively.

8 A. Again, in...

9 Q. If I may explain, it just seems to me
10 that quantitatively, it is very carefully and strictly
11 defined. But qualitatively, could you tell me how a
12 health protection standard would be defined?

13 A. Again, I would refer you to our Panel
14 9 where the people who deal with that topic in defining
15 health protection standards will be participating.

16 I could give you a definition that seems
17 reasonable to me, but in the context of this document
18 and in the context --

19 Q. Yes. I am not asking in the context
20 of that document any more.

21 A. And in the context of development --

22 Q. Context of this, these three pages
23 that are in front of us.

24 A. But in the context of the development
25 of such a standard for nuclear stations, I do not have

1 expertise in that area.

2 Q. Would you agree with this, that the
3 classical definition of a health protection standard
4 was defined as the level at which ill effect is first
5 detectable. The standard was then set at 10 times
6 below that level.

7 That is the classical way in which a
8 health standard was set, and that went right through
9 until mid-1970s.

10 A. I do not have any personal knowledge
11 of that definition. That is not my area of expertise
12 in setting limits.

13 THE CHAIRMAN: But you say that there
14 will be someone on Panel 9 who will be able to answer
15 questions of that nature?

16 MS. RYAN: To my knowledge, yes.

17 MRS. DEQUEHEN: Q. Perhaps I could just
18 go on to the next question, and this is referring to
19 the second reference. De minimis radiation doses for
20 Canada.

21 Now, this gives a definition of a de
22 minimis radiation dose. I wonder whether you are
23 acquainted with this term.

24 MS. RYAN: A. I am acquainted with the
25 term "de minimis", yes.

1 Q. And this is 1990. Are you acquainted
2 with this document?

3 A. No, I am not.

4 Q. This is the Recommended De Minimis
5 Radiation Dose for Canada by the Advisory Committee on
6 Radiological Protection and Advisory Committee on
7 Nuclear Safety, Approved for publication 1988, revised
8 1990.

9 It states here:

10 "A de minimis collective dose --"

11 No. The top, upper one:

12 "A de minimis individual dose rate
13 of 10 microsieverts per annum..." - 10
14 microsieverts is 0.1 millisieverts -

15 "...based on a risk level that would
16 generally be regarded as negligible in
17 comparison with other risks..."

18 It is of that value and it gives a
19 definition, do you agree, of a de minimis level?

20 A. I haven't seen this document.

21 Q. No. But I am just saying, that
22 particular clause gives --

23 A. I read where you are, yes.

24 Q. Now, the present limiting dose for
25 public annual exposure is 5 millisieverts per annum, is

1 it not?

2 A. Yes, it is.

3 Q. Now, this de minimis dose is defined
4 at 0.01 millisieverts and this is the level at which
5 effects are negligible, or in other words, this is a
6 level at which effects appear, which I think you will
7 agree is more or less the same thing. This is the
8 first level at which either they are negligible or it
9 is detectable. This is at 0.01, or in other words --
10 this -- so if, in the classical, using the classical
11 procedure in the setting of standards - and by
12 "classical", I am only going back to the mid-70s - a
13 health dose based on this de minimis dose will be
14 somewhere in the region of 1 microsievert per annum,
15 wouldn't it, if it was 10 times lower, on the threshold
16 of detection. However --

17 THE CHAIRMAN: Now, I think it is pretty
18 hard for -- this is a question, I take it, but I think
19 you have to frame it in the form of a question.

20 It is very hard for Ms. Ryan to follow,
21 but perhaps if you could just express the question you
22 want her to answer.

23 MRS. DEQUEHEN: Well, I want her to
24 confirm that if the de minimis dose is 10
25 microsieverts, then using the classical procedure with

1 regard to the derivation of a protection standard, it
2 would be one. That is just dividing by 10.

3 Q. Is that correct?

4 MS. RYAN: A. Based on your definition.

5 Q. Certainly, which can be checked
6 afterwards, presumably.

7 So that, using the classical definition
8 of a safety standard, which was, as I have said
9 repeatedly, was used up to 1970, and comparing that
10 with the value which is being used as the limiting --
11 which is being quoted as limiting dose, it is 5,000
12 times smaller.

13 A. Just a minute, please. So, based on
14 your definition of de minimis at 10 microsieverts?

15 Q. Based on that and based on what I
16 said about a classical standard being 10 times lower,
17 generally.

18 A. I guess the difficulty I am having is
19 that I am not in a position to make judgment on these
20 numbers. You are giving me information and it is based
21 on a document that I have not seen before.

22 THE CHAIRMAN: You can take the document
23 as given.

24 MS. RYAN: Okay.

25 THE CHAIRMAN: The validity of the

1 document will have to be proved at some point--

2 MS. RYAN: I can work through the math.

3 THE CHAIRMAN: But taking that as given,
4 that question, if you can answer the question.

5 Don't you also have to know what she
6 means by the classical --

7 MRS. DEQUEHEN: Q. Well, when I say
8 "classical", I mean, it appears in -- it was taught for
9 very many years and standards which have not been
10 altered since the 1970s were still set in that manner,
11 a typical health standard. I mean, this is information
12 from Health & Welfare and studying --

13 MS. RYAN: A. Well, it may be a
14 classical approach, but my understanding is, the
15 concept of de minimis is quite new and I did not
16 realize that final agreement had been reached and that
17 it was being implemented, so --

18 Q. No. I am not saying that it is
19 implemented. I am sorry. I am merely saying that that
20 gives a measure. It is agreed that that is a measure
21 where health effects are negligible or no longer
22 detectable. And that same reasoning was used in
23 classical, and when I say "classical", it is not
24 generally called "classical". I am merely using it to
25 differentiate.

1 THE CHAIRMAN: Differentiate from what?

2 MRS. DEQUEHEN: To differentiate from
3 the manner in which the standard is presently set.
4 This is what I want to get to.

5 MS. RYAN: I would suggest if the
6 discussion you want is on how our standards have been
7 set and are they at an appropriate limit, I am not the
8 best person to be providing you answers. Panel 9 would
9 do that better.

10 I can work through the math and give you
11 a judgment, this number is bigger than that, but I
12 cannot give you the background of knowledge of method
13 development and what has gone on, into it in detail to
14 provide you those answers.

15 THE CHAIRMAN: Perhaps you could help me
16 as to what exactly is the point you are trying to make
17 here? What is the point you are trying to make?

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1 [4:05 p.m.] MRS. DEQUEHEN: I think the point I am
2 trying to make is that they have used these pages to
3 present the field --

4 THE CHAIRMAN: "These pages" being?

5 MRS. DEQUEHEN: These pages in Volume 16
6 here, in their presentation to present the field of
7 radiological protection in the very best light without
8 actually substantiating the actual statements they
9 make. They presented them as simple propositions.

10 THE CHAIRMAN: Perhaps you could refer to
11 the statements and ask them what they have to
12 substantiate it, the statements, those that you take
13 issue with.

14 I think if you could identify the
15 statements that you take issue with, which you don't
16 think are substantiated, then you can ask them what
17 they have to substantiate it. Because I am not sure
18 where this particular discussion is getting us that we
19 are having right now. It's not helping us to decide
20 what we have to decide.

21 MRS. DEQUEHEN: Well, I hoped that they
22 would have to modify what they have written here,
23 whether verbally or not.

24 THE CHAIRMAN: Well, they haven't
25 written --

1 MRS. DEQUEHEN: I feel that if this goes
2 unchanged for the next seven months, it will look as
3 though it is acceptable, which it is not at all.

4 Statements such as this, on page --

5 THE CHAIRMAN: Just a moment now, just so
6 we understand each other. Nothing that they say, that
7 has been written down, is immune from challenge. In
8 fact, that's what the interventions are for. The
9 intervenors are going to present evidence which will
10 take a different view in some areas than has been taken
11 here. We, at the end of it all, will have to try and
12 sort it out and make decisions on it.

13 This is not the time to argue those out.
14 But if there are statements in there that you take
15 issue with, which you think are not substantiated, then
16 the usual way to do it is to draw their attention to
17 those statements and ask them what basis they have for
18 making those statements.

19 MRS. DEQUEHEN: Well, statements here
20 taken in --

21 THE CHAIRMAN: Why don't you do it that
22 way, if I can suggest that to you. Because I don't
23 think we are getting very far in helping us with these
24 questions.

25 MRS. DEQUEHEN: Q. Well, the statement

1 on page 2761, line 5:

2 "The dose from station emissions to a
3 member of the public living at the
4 boundary is a small fraction, about 1 to
5 2 per cent, of what they receive from
6 natural background radiation."

7 Could you please substantiate that?

8 MS. RYAN: A. My understanding and our
9 information is that natural background radiation is
10 about two-and-a-half millisieverts to the average
11 Ontarian.

12 We cannot measure dose to the public as a
13 one measure type of measurement, so what we do is look
14 at the pathways by which our emissions can get from the
15 station to the public and we do two things.

16 No. 1, based on our emissions which are
17 measured at the station, we calculate what dose that
18 would result in in a member of the public at the
19 boundary. That calculation is based upon the
20 methodology which has been approved by the Atomic
21 Energy Control Board, based on pathways and modelling
22 detail.

23 And so based on the given emissions in a
24 year, taken through a model to a person, and this is
25 hypothetical person, and the most susceptible living at

1 the boundary, we do a calculation and that calculation
2 tells us that, in fact, that person receives less than
3 one per cent of the regulated dose limit.

4 In addition to that, we go out into the
5 environment, off the property of the station, and take
6 measurements of various samples such as milk,
7 sediments, vegetables, honey, it depends on the
8 specific station because the models are
9 station-specific.

10 Then, in addition to that, based on those
11 measurements, we go through the calculation and compare
12 that to the dose limit as well.

13 Q. This is the calculation to work out
14 the dose of exposure--

15 A. Yes.

16 Q. --to the critical group.

17 Are you talking about DELs?

18 A. I am reporting about the emissions
19 would be compared to the derived emission limits. But
20 the dose that is calculated is based upon the
21 regulatory standard for public dose.

22 Q. Could you give me the definition of
23 DEL?

24 A. The derived emission limit?

25 Q. Yes.

1 A. The derived emission limit is the
2 allowed rate of emission, which is back-calculated
3 based upon the regulated public dose.

4 Q. And when you say the "regulated
5 public dose," that is the dose level which we were
6 talking about, could you give me the value of that
7 regulated public dose?

8 A. That is the 5 millisieverts that you
9 mentioned.

10 Q. And could you give me the actual term
11 that is used from what you call the regulated public
12 dose?

13 THE CHAIRMAN: By term you mean?

14 MRS. DEQUEHEN: Well, the actual name
15 which is specifically used to describe this.

16 THE CHAIRMAN: Do you know the name?

17 MRS. DEQUEHEN: Well, the point is --

18 THE CHAIRMAN: If you know it, then maybe
19 you could suggest it to her and she can agree or
20 disagree.

21 MRS. DEQUEHEN: Oh, well. I mean, she
22 only has to look here on 2760, and here it is called
23 the limiting public dose.

24 Q. Would you say it is a public dose or
25 public dose exposure?

1 Could you suggest a difference between a
2 dose and dose exposure? Because they are very
3 different things.

4 MS. RYAN: A. Again, I think the
5 discussion that you seem to want to get into is not --

6 THE CHAIRMAN: No, no. Help her as much
7 as you can, if you can't help her... But help her as
8 much as you can.

9 MS. RYAN: I don't know.

10 MRS. DEQUEHEN: Q. I challenge this
11 definition here because it is really a dose exposure we
12 are talking about, an annual dose exposure over time.

13 MS. RYAN: A. Yes.

14 Q. And here it doesn't mention annual
15 and it doesn't mention exposure. I mean, a dose,
16 you're just going dose someone, they walk through and
17 get a dose.

18 With regard to these derived emission
19 limits, which, as you say, depend upon the public dose
20 exposure, limiting public dose exposure--

21 A. Yes.

22 Q. --would you admit that in the
23 derivation of this value there is an enormous amount of
24 uncertainty, assumptions involved, judgmental decisions
25 to be made, an enormous amount of uncertainty and error

1 altogether. So that, although you start with a
2 particular value, which you derive this DRL, would you
3 admit that a lot of error and obscurity could come in
4 which would bear analysis? And here I think we could
5 turn to the volume which was in response to
6 Interrogatory 9.22.6. I think there was just one copy.

7 A. Excuse me, what are you referring to?

8 Q. The basis for derived limits for the
9 emission of radionuclides in airborne and liquid
10 effluents from Ontario Hydro nuclear facilities?

11 A. Excuse me, was that an interrogatory
12 starting with a 9?

13 Q. Yes.

14 A. So, it was answered by Panel 9.

15 Q. Certainly. But I am referring to it
16 here.

17 THE CHAIRMAN: Excuse me, what page of
18 9.22.6 are we on? I have got it here --

19 MRS. DEQUEHEN: I am just referring not
20 to any page in particular, but I think this --

21 THE CHAIRMAN: Excuse me, only one person
22 talking at the time. If I am talking then I am the one
23 to talk.

24 This interrogatory is like this. So,
25 could you just tell us what page it is you are looking

1 at? That would be a great help.

2 MRS. DEQUEHEN: Well, starting with the
3 beginning and going through the whole thing deals with
4 derivation.

5 MRS. FORMUSA: We don't have a copy of
6 the report. That wasn't one of our handouts. We have
7 to go back and get it.

8 THE CHAIRMAN: You don't have it?

9 MRS. FORMUSA: We have it back there.

10 THE CHAIRMAN: Maybe you could just tell
11 us what your line of questioning is.

12 MRS. DEQUEHEN: Yes. I don't think it's
13 terribly important you haven't got a copy.

14 My point is just that it involves an
15 enormous number of calculations and derivations and
16 coefficients and transfer of parameters, et cetera, et
17 cetera, all of which involve an enormous possibility
18 for uncertainty, error, assumptions. So, it makes it
19 very, let us say, flexible sort of values, so that
20 although they start with definite standard, the
21 possibilities become huge for variation to creep in.

22 It would require a lot of analysis, which
23 we don't intend to do here. But it's merely, if I may
24 explain, that this is all represented as so
25 straightforward and simple and precise, but the truth

1 is, it's not.

2 If I could have gone through the method I
3 had hoped would show how the whole methodology is just
4 fraught with difficulties. I hoped it would illustrate
5 the fact that it is not just a matter of simple
6 propositions which are presented. And until there is
7 clarification of the methodology, they can't really
8 draw these conclusions which are unsubstantiated.

9 THE CHAIRMAN: And this is methodology
10 for what?

11 MRS. DEQUEHEN: Methodology.

12 THE CHAIRMAN: For what?

13 MRS. DEQUEHEN: The way in which
14 standards are derived and set, how they relate to
15 health issues.

16 THE CHAIRMAN: Just a moment. You have
17 got to be patient with me.

18 They don't set the standards, if you are
19 talking about radionuclides, they don't set the
20 standards, other people set the standards and then they
21 attempt to comply with them.

22 Are you attacking the standards or are
23 you attacking the level of compliance?

24 MRS. DEQUEHEN: I am attacking the
25 conclusion or the implication that these methods

1 actually protect the public against radiation because
2 there are a lot of subtleties.

3 THE CHAIRMAN: I am sorry, I just want to
4 be clear. Are you attacking the standards that are set
5 by the AECB?

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1 [4:23 p.m.] Is that what you're attacking?

2 MRS. DEQUEHEN: Not at all, I am not
3 attacking the standards set.

4 THE CHAIRMAN: Their evidence is, in a
5 nutshell, that they presently meet those standards by
6 whatever criteria you want. They are less than one per
7 cent of the published standards, but the policy is to
8 have the standards to being as low as is reasonably
9 obtainable. That's their evidence so far, in a
10 nutshell, I guess. Do you have any concern about that?

11 MRS. DEQUEHEN: Absolutely.

12 THE CHAIRMAN: What is the nature of your
13 concern?

14 MRS. DEQUEHEN: My concern is, the
15 implication that because they meet the standards
16 radiation is being protected.

17 THE CHAIRMAN: Do you have any comment to
18 make on that?

19 MS. RYAN: A. Yes, I do. I guess my
20 comment is that there are regulated limits for public
21 dose exposure and you have taken issue with the model
22 used to go from the standard to our emission limit.

23 In any model there are assumptions made.
24 My understanding is that in developing our models we
25 use conservative assumptions and that these are

1 reviewed by, and approved by, the Atomic Energy Control
2 Board. In addition to that the people working on the
3 models are cognizant of the other studies going on and
4 so incorporate new information as it becomes available.

5 I think it is also important to note that
6 we are not working at the standard, we have set in
7 operating target of one per cent of that standard and
8 we do, in fact, meet that operating target. So, in
9 fact, our -- and the calculations are to a member of
10 the public at the fence line and the calculations are
11 based upon the most susceptible member of the public.

12 So, again, in going to what the general
13 public might receive there is another conservative
14 assumption made there. My position is that we are, in
15 fact, operating the station such that the dose to a
16 member of the public is extremely low and well below
17 the regulated limit and the graph I presented was only
18 to give an idea of the dose that people might receive
19 from various sources.

20 MRS. DEQUEHEN: Q. Well, I think I have
21 to come back to the beginning. When you say "the
22 regulated limit,"--

23 MS. RYAN: A. Yes.

24 Q. --is that a health standard?

25 A. My understanding --

1 Q. I would have to come back and ask all
2 those questions again.

3 THE CHAIRMAN: Let her answer the
4 question.

5 MRS. DEQUEHEN: Q. Is it a health
6 standard?

7 MS. RYAN: A. My understanding is that -
8 and I'll call it the regulated limit is - the public
9 dose limit is set to protect public health.

10 Q. Is that the sole consideration that
11 is taken into effect when that -- in the method by
12 which that limit is set, health?

13 A. I do not have any further information
14 on specifically how the limit is set. Again, the
15 nuclear panel would have more information on that.

16 Q. So, are you saying that you do not
17 know, in fact, what protection -- you are saying, you
18 do not know what health protection that dose gives --
19 regulated limit gives, that is not within your sphere
20 of knowledge?

21 A. I'm saying that the Atomic Energy --

22 Q. No, no, no, that wasn't what I was
23 asking. I was saying, do you know how much protection,
24 or can you define the amount of protection to health
25 that that regulated dose limit, as you call it, gives?

1 A. If you are talking about the dose
2 limit that is set by the Atomic Energy Control Board as
3 our regulated limit, I do not have detailed knowledge
4 of all of the parameters that went into setting that.
5 However, it is my understanding that it was set to
6 protect public health. It is also my understanding
7 that they are looking at that standard and are looking
8 at --

9 Q. I wasn't asking you about that.

10 THE CHAIRMAN: I think she can finish
11 that.

12 MS. RYAN: As I pointed out, the standard
13 is being re-evaluated and has been over a number of
14 years and is likely to be lowered and it may perhaps be
15 a five-fold lowering. But, it hasn't been done yet.

16 MRS. DEQUEHEN: Q. But, you cannot, or
17 anyone on the panel, cannot give any definite, or know
18 of no definite evidence, of the protective affect of
19 this dose?

20 MS. RYAN: A. Again that expertise would
21 be on Panel 9.

22 Q. So, you are, as it were, working in
23 the dark? When I say, "working in the dark," you're
24 merely taking a number and stating that according to
25 the monitoring of the emissions you are reaching a

1 certain level.

2 But, as for the effectiveness of that
3 particular value, which is public limiting dose, as to
4 effectiveness, you do not know. So, here all you are
5 stating is that that particular number is, according to
6 your methodology, actually as compared to background
7 radiation and as compared to derived release levels you
8 can give me the relationship between that number and
9 others but you know nothing about the effectiveness of
10 the actual protection, public radiation protection.
11 You merely know how that number fits in with the rest
12 of the methodology. It is more like a numerical
13 exercise, in fact --

14 THE CHAIRMAN: I think this is going to
15 be a very long question. Can you answer it so far?

16 MS. RYAN: I have two comments. One is
17 that although I do not have detailed knowledge of the
18 method of setting standards I believe it's a fair
19 assumption to believe that our operating target of one
20 per cent of the regulated limit - which is what we are
21 meeting - is, in fact, providing a level of
22 environmental protection and public health protection.

23 I think I also need to state that my
24 position on this panel is to give an overview and
25 Ontario Hydro has a lot of people who work in the field

1 of radiation protection and I rely on their expertise
2 in being knowledgeable of model development and
3 standard setting and that type of thing. I do not need
4 to know all of the details to be able to provide the
5 information with confidence that, in fact, we are
6 operating at one per cent of the regulated limit.

7 THE CHAIRMAN: That wasn't really the
8 question. The question was do you have any opinion one
9 way or the other of the effectiveness from a health
10 point of view of the standards?

11 MS. RYAN: My understanding is --

12 THE CHAIRMAN: Other than your evidence
13 you've already given that they were designed to protect
14 the public.

15 MS. RYAN: They were designed to protect
16 the public and the fact that they are undergoing review
17 now indicates that there is a need for them to be
18 lowered.

19 THE CHAIRMAN: I think we have pretty
20 well exhausted that subject. I think we can perhaps go
21 on to a new topic now. I think that I've got your
22 position and Hydro's position fairly well implanted in
23 my mind.

24 MS. PATTERSON: That doesn't prevent you
25 from coming back to Panel 9.

1 THE CHAIRMAN: You can ask other
2 questions. On that particular question the
3 effectiveness of the radiation -- the health affects of
4 the radiation limits I think I have your position and I
5 have Ontario Hydro's position.

6 MRS. DEQUEHEN: Perhaps I could just
7 clarify my position; or not?

8 THE CHAIRMAN: All right. I think I
9 understand it, but you go ahead.

10 MRS. DEQUEHEN: I just feel that a view
11 is coming over which is completely unsubstantiated
12 because they are just doing the little last flip but
13 still using that to put over an idea that there is
14 complete protection.

15 But when you actually analyze the whole
16 situation, fundamentally from the beginning, you get
17 quite a different view of the whole thing, obviously
18 this panel isn't equipped to do it, but somehow their
19 representation on those pages puts forward the idea
20 that there is radiation protection which, if analyzed
21 in detail and thoroughly, would not have held up.

22 THE CHAIRMAN: I didn't mean to cut you
23 off from any other questions. I just thought that
24 particular question of the effectiveness from a health
25 point of view of the radiation limits had been

1 exhausted as far as anything this panel could tell you
2 about that.

3 MRS. DEQUEHEN: Yes, I realize that, that
4 this panel can't tell me, but I just feel that their
5 presentation should not have given a false
6 representation. I think that the whole thing is very
7 falsely represented to the public.

8 THE CHAIRMAN: You have no further
9 questions?

10 MRS. DEQUEHEN: Thank you very much. No,
11 I haven't. It was all on this one particular issue.

12 THE CHAIRMAN: Mr. Thompson, are you
13 ready to go?

14 CROSS-EXAMINATION BY MR. THOMPSON:

15 MR. THOMPSON: Q. My first couple of
16 questions have to deal with Interrogatory 2.24.10. I
17 don't think there is any need to turn it up because I
18 think the questions are fairly straightforward.

19 I understand that if the Keith Generating
20 Station in Windsor were to be restarted that it would
21 not eliminate the need for the Windsor area overload
22 protection and load rejection scheme. Could any of the
23 panel confirm that for me or would I wait for another
24 panel?

25 MR. BARRIE: A. Can you give me that

1 again?

2 Q. If the Keith station were to be
3 restarted my understanding is that this would not
4 eliminate the need for the Windsor area overload
5 protection and the load rejection scheme in that area.

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1 [4:35 p.m.] A. I think that is correct.

2 Q. Okay. Thank you. And my
3 understanding of the Lambton generation rejection
4 scheme, it appears to depend on the tie-line
5 connections to Michigan rather than restrictions to
6 Ontario, itself.

7 If these tie-lines to Michigan were
8 upgraded, would this eliminate or reduce the need for
9 the Lambton generation rejection scheme?

10 A. You are correct, that the Lambton
11 generation rejection scheme is related to, flows on the
12 tie-lines after certain contingencies occur.

13 I would have to know the specifics of
14 what upgrading would take place to give an opinion as
15 to whether the need would be removed. Clearly, at some
16 point, yes, it would be removed.

17 Q. I think that is fine. I don't think
18 there is any need for further undertakings on that.

19 Thirdly, I happen to note here on this
20 interrogatory that there is a load rejection scheme on
21 the, if my pronunciation is correct, the Beauharnois?

22 A. Beauharnois.

23 Q. Beauharnois. Now --

24 THE CHAIRMAN: Excuse me, Mr. Thompson.
25 Sorry to interrupt you. Just before I forget, I think

1 the document that had the definition, the de minimis
2 definition which was referred to, should be marked as
3 an exhibit. It will be the next exhibit number. It
4 was Reference No. 2 on Mrs. DeQuehen's...

5 THE REGISTRAR: 169, Mr. Chairman.

6 THE CHAIRMAN: 169?

7 THE REGISTRAR: Yes.

8 THE CHAIRMAN: Thank you.

9 ---EXHIBIT NO. 169: Northumberland Environmental
10 Protection Reference 2, Panel 2.

11 MR. THOMPSON: Q. Perhaps you could
12 clear up just a little bit of a mystery for me.

13 Last Friday afternoon, I completely by
14 accident drove by the Beauharnois dam, and unless I was
15 mistaken, it seemed to me to be located inside the
16 Province of Quebec and that there was signs on it
17 saying "Quebec Power", and did I miss something or how
18 is one of your plants in Quebec with Quebec signs on
19 it?

20 Admittedly, I was driving a truck at the
21 time and I was paying my attention to the road, but it
22 is just a little bit of a mystery to me as to --

23 MR. BARRIE: A. I don't think your eyes
24 are deceiving you, no. That is correct.

25 The rejection will reject generation. It

1 will be in Quebec, but it is associated with a
2 contingency occurring in the Ontario transmission
3 system.

4 Q. So, is it a Quebec plant or your
5 plant?

6 A. Yes. It is a Quebec plant.

7 Q. All right. Thank you. That was just
8 something that I, just when I noticed the name here
9 today, I thought, hmm, I have been there recently and
10 something twigged on me.

11 Now, the next questions have to do with
12 the customer interruption costs and Mr. Rodger on
13 several occasions has looked at it.

14 Now, I have some concerns on that and
15 perhaps just by giving you a brief example as to why I
16 have these concerns, I would like to comment on which
17 aspect of my logic may or may not be correct.

18 For about the past five years, I have
19 been on the Board of Governors of our local 50-bed
20 hospital, and as a member of the Finance Committee for
21 that time, I have had occasion to explore the costs of
22 power outages insofar as it pertains to the costs of
23 maintenance, operation and replacement of our standby
24 generator.

25 For us, a standby generator is pretty

1 well mandated, in that, as I understand, we have to
2 have it to keep our accreditation as a hospital.

3 Therefore, if you were to ask us about
4 the costs of doing without the electricity supplied by
5 Ontario Hydro, we would say that it would approximate
6 the diesel fuel costs of about \$20 an hour plus the
7 inconvenience of having our elevators out of service
8 during the power outage.

9 If, however, we were asked about the cost
10 of having no electricity, at all, for an hour due to
11 either the absence of or breakdown of our generator,
12 the costs of being without power could escalate into
13 the value of human life itself. And this over the past
14 years has been a real concern to us on the Board.

15 Therefore, as I see it, the costs of
16 doing without electricity from Ontario Hydro and the
17 costs of doing without electricity, period, can be
18 substantially different and can lead to substantially
19 different conclusions, depending on the assumptions
20 used.

21 I realize that reality of the actual
22 costs is probably somewhere in the middle, but I guess
23 the long way to a short question is to ask how the
24 customer interruption costs were measured, especially
25 if and where customers had already purchased these

1 generators or special protection systems, as I call it,
2 by the time of the survey, insofar as that the special
3 protection systems may artificially and substantially
4 lower the actual costs of a one-hour interruption, in
5 that from my point of view, I have some difficulty in
6 saying that the cost of a power outage for our hospital
7 is \$20 an hour.

8 It just intuitively somehow doesn't seem
9 that that fully represents the true costs and that
10 somehow, there is something that seems to be missing
11 from the equation and perhaps you could help me with
12 that in taking my concern through to how you actually
13 developed your costs of one hour's power outage.

14 MR. TABOREK: A. The costs in the
15 different categories, the questions asked were
16 essentially aimed at asking the customer what he would
17 do, what he would actually pay for in the event of
18 various outages that were described to him. So, if his
19 response was that he would put in place a back-up
20 generator, then that would be the cost.

21 That was true of all categories, except
22 in our original survey, that put to the residential,
23 and they were asked a premium type of question.

24 Now, later surveys have attempted to put
25 the same question of costs to the residential people,

1 as well, so that the thrust of the questions is: What
2 would you actually pay, what would you actually do, and
3 what would it cost you to do that particular action in
4 the event of the defined outages.

5 Q. So, the costs then would be the costs
6 to remedy the outage; not the actual effect of the
7 outage, itself?

8 A. Not the consequences of the outage.

9 Q. Not the consequence of the outage,
10 okay.

11 A. Now, in particular, the example you
12 take. Various terms have been used as externalities,
13 indirect costs, et cetera. There are many other costs
14 that are recognized that could be -- that might be
15 occurring, but what we attempted to try and pin down
16 was simply the direct cost.

17 Q. Okay, fine.

18 A. I could give you an example of some
19 of the questions that are asked, for instance.

20 Q. No. I think that has answered it,
21 that you are coming at the replacement costs--

22 A. Yes.

23 Q. --rather than the losses which might
24 be incurred.

25 A. And in your particular instance, I

1 would presume the answer would be what we would have --
2 if you did not have a diesel generator, the answer
3 would be we would put in a diesel generator and the
4 cost of that would be assessed against the various
5 durations of outages.

6 Q. It was just unclear from the
7 terminology in Exhibit 87 when costs can apply to many
8 things, the losses incurred or the replacement costs--

9 A. That is correct.

10 Q. --and this is the first time I have
11 come across the fact that it is actually the
12 replacement costs rather than the losses which might be
13 incurred.

14 A. That is right.

15 Q. Okay. So, that is fine.

16 Now I would just like to briefly explore
17 the costs of a one-hour power interruption on farms to
18 follow up on the two cross-examinations by AMPCO, and I
19 think that we can pretty easily satisfy both myself and
20 Mr. Rodger by coming up with maybe a couple of
21 assumptions.

22 As a basis for my question, part of the
23 differences I see may be in definition, that it is
24 generally and widely accepted, as I understand it,
25 that - and this is Assumption 1 that I am going to

1 make - approximately 20 per cent of all census or tax
2 filer farms produce about 80 per cent of all
3 agricultural output; thus being, for some definitions,
4 large farms. The other 80 per cent would appear to
5 produce so little because they are subsistence farmers
6 or part-time or retired, that they would effectively
7 produce very little.

8 The second assumption is that Ontario
9 farmers would have a larger proportion of greenhouses,
10 poultry and swine and other electricity-dependent
11 operations than the national average.

12 So, given those two assumptions, I do not
13 have any difficulty and I would like to get the Board's
14 or the Panel's opinion. Would you agree with me that
15 it is therefore possible that Hydro's survey of large
16 farms that produce the high costs and that it's been
17 referred to before as approximately \$275 compared to
18 the 74 cents that was produced by the survey,
19 Saskatchewan survey referred to earlier.

20 Given the statistical -- you are
21 comparing 20 per cent of Ontario farms versus 80 per
22 cent of all farms, given the weighting, would you agree
23 with me that it is entirely possible that both could be
24 correct, both this 275 and the 74 cents, or that we
25 could, because of the weighting in these assumptions,

1 be coming up with something which we could all accept?

2 I don't have any trouble with the ratios
3 and I am not going to argue about the actual numbers.
4 It just seems plausible to me that if you are surveying
5 all farms, 74 cents is reasonable. If you are
6 surveying the top 20 per cent of all Ontario farms,
7 that number would also be somewhere reasonable.

8 MR. SNELSON: A. Well, I can comment on
9 that. Directionally, you may very well be right, that
10 large farmers are more electricity-intensive and have
11 larger damage costs, so that may very well be right.

12 One of the reasons that the very large
13 number for large farms gave us so much difficulty in
14 1981 and the reason we do not use it today is that it
15 seemed to be high enough that if interruption costs
16 were really that high, then they would have a financial
17 incentive to install their own back-up generation
18 facilities.

19 So, we felt that it was probably not a
20 realistic number to have it that high.

21 Q. Okay. Now, I think because of the
22 time, I will go through quickly. I am sorry to admit,
23 I have lost a little track of just what an increase in
24 the weighted average costs of interruption might mean.

25 Let us assume for just a moment that my

1 concerns are valid and that the cost of interruptions
2 are somewhat higher than reported, both on farms and on
3 other areas of society.

4 What would an increase in the weighted
5 average cost of power actually mean for us here?

6 MR. TABOREK: A. If we were in the
7 determination of the minimum total customer costs,
8 we --

9 Q. The cost of an outage, I should make
10 clear.

11 A. Yes, okay. If you double the cost of
12 an outage, it would add 1 per cent to the reserve
13 margin that gives you minimum total customer cost.

14 If you halve the cost of an outage, you
15 would deduct 2 per cent. Just let me check that I have
16 my numbers in the right direction.

17 Q. My concern arises from the fact that
18 I have this concern or idea that the use of generators
19 might artificially lower the reported cost of an outage
20 and that if we -- I hate using the term "level playing
21 field", but if we made everything equal or appeared to
22 be equal, that the actual cost of an outage may be
23 higher than what is reported.

24 I think I hear you saying, no, that is
25 not the case. Our methodology was used before we

1 assumed the generators.

2 A. Yes. Just if I may take them in
3 step. I did give you the reverse number. I would
4 refer you to Table 5-1 on page 97 of Exhibit 87.

5 No. I am sorry. It is 1 per cent and...
6 It is 1 per cent in either direction for doubling or
7 halving, so that is the differential.

8 And then your subsequent question is that
9 it is -- these numbers are already so large, they are
10 about 100 times the cost of power, for instance, so if
11 you have an average of \$5 or \$6, that is compared to 5
12 or 6 cents for the cost of power.

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1 [4:50 p.m.] So, because it is so large, the minimum
2 total customer cost comes when you have very little in
3 the way of outages, almost a negotiable amount. And
4 since it is a negligible amount, differences in the
5 cost of power which you estimate, don't really have
6 significant effect on the reserve margin you will
7 choose, and that's the numbers I gave you Table 5.1.

8 Q. To follow up on that, I think I
9 understand, is or would there be any effect on the
10 reserve margin from the installation and the usage of
11 standby generators on farms other areas in the
12 province?

13 A. What it would do, I would presume is
14 that a farm respondent would then say that his cost of
15 an interruption was merely the fueling and running cost
16 as opposed to purchase cost since he had already sunk
17 the cost, I would presume. Would that be the way it
18 would work? Yes.

19 Consequently, his responses would be for
20 lower numbers. The lower numbers would then be
21 weighted by all the other farm responses and then
22 weighted by the whole set of responses, and I think the
23 effect would be a small change on the presently 5.91.
24 That takes us to the point, very large changes in the
25 5.91, like a doubling and halving, are only going to

1 have about a one per cent, plus or minus, effect on the
2 reserve margin.

3 Q. So, if everybody in Ontario could
4 economically use standby generation, the reserve margin
5 wouldn't change by anymore than just your --

6 A. Well now, if everybody in Ontario did
7 it -- I sort of multiplied by, the percentage of people
8 who do it, of course, is important.

9 Q. I should maybe stress, if it's
10 economic for them or if they have them as normal
11 business rather than --

12 A. Yes, that's okay.

13 Q. All right. Now, in the examination
14 in chief, I heard somebody mention, and I am not just
15 too sure who and exactly what the concept was, but I
16 seem to understand that the system is such it allows
17 Ontario Hydro to either optimize generation economics,
18 if that's the right terminology, in that you can chose
19 which generation plants can be utilized in what
20 capacity to provide the -- I think the word was
21 optimum, or least cost, or most economic, or most
22 environmentally sound, or what was the terminology
23 there?

24 MR. BARRIE: A. That was my part of my
25 evidence in chief, I think. I think if I can remember

1 the words, we are trying to optimize with a number of
2 objectives, and you have mentioned some of them.

3 Q. Now, I guess the concern I had on
4 that was that optimization of generation may not
5 necessarily mean optimization of transmission, that is
6 it possible to have the best generating sources on, you
7 would also be using the longest transmission lines?

8 A. When we are optimizing generation,
9 one the factors that is taken account of is
10 transmission losses.

11 Q. I see.

12 A. So, it is possible that you could
13 have a very efficient and cheap source of generation
14 that would incur losses.

15 What that would have the effect of doing
16 is to subtract, if you will, some of the economic
17 advantage of that source of generation. So, it is
18 taken account of and it is part of the cost
19 optimization.

20 Q. I was just concerned that generation
21 was being considered exclusive of the transmission
22 considerations, and your response, as I understand it,
23 transmission is part of the equation?

24 A. Yes, indeed. In system operation the
25 two are indivisible. We are system controllers, not

1 generation controllers or transmission controllers; we
2 are system controllers.

3 Q. One last question, I believe it was
4 in the State of the Environment Report which indicated
5 that radioactive waste oil was being transferred from
6 Pickering to Bruce. I guess the concern some members
7 of the farm community have is the wisdom behind
8 transporting any sort of radioactive waste through the
9 country side, where farmers live, in order to store it
10 at some other place than where it was generated. I
11 just wondered if you could comment on the decision made
12 to do that and how short term a solution storing this
13 oil at Bruce is scheduled to be?

14 MS. RYAN: A. My understanding is that
15 the decision was made to transport it to Bruce because
16 they do, in fact, have waste storage facilities with
17 the appropriate design to safely maintain it and that
18 would remove it from Pickering.

19 The length of storage I would have check
20 on that. I don't know.

21 MR. THOMPSON: Thank you very much,
22 Panel.

23 Those are my questions, Mr. Chairman.

24 THE CHAIRMAN: Thank you, Mr. Thompson.

25 We are fairly accurate. Mr. Castrilli

1 was actually underestimated by half an hour. So, he
2 will be starting off, is that right, on Monday after -
3 you have got to tell him that - after the scoping on 3,
4 but he will be expected to be on then.

5 MS. MARLATT: Yes. And I believe that
6 Northwatch is also cross-examining on Monday.

7 THE CHAIRMAN: Northwatch has lost its
8 turn. If you want to go ahead, you are entitled to.

9 MS. MARLATT: Since they are not here,
10 but no... It's fine with me if Northwatch proceeds.

11 THE CHAIRMAN: I am not sure it's fine
12 with Mr. Castrilli.

13 MS. MARLATT: We will sort that out.

14 THE CHAIRMAN: Can the three of you short
15 that out?

16 MS. MARLATT: Yes.

17 THE CHAIRMAN: That's great.

18 Then OMAA and then Mrs. Mackesy, and then
19 Mr. Hunter and then Ms. Couban. Nine o'clock on
20 Monday, June the 10th, for scoping of Panel 3, tomorrow
21 morning at 8:45 for those who are going to Darlington.

22 THE REGISTRAR: This hearing is adjourned
23 until Monday morning next at nine o'clock for the
24 scoping of Panel 3, and until 8:45 tomorrow morning for
25 the tour.

1 ---Whereupon the hearing was adjourned at 5:00 p.m.
2 to be resumed on Monday, June 10th, at 9:00 a.m.
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